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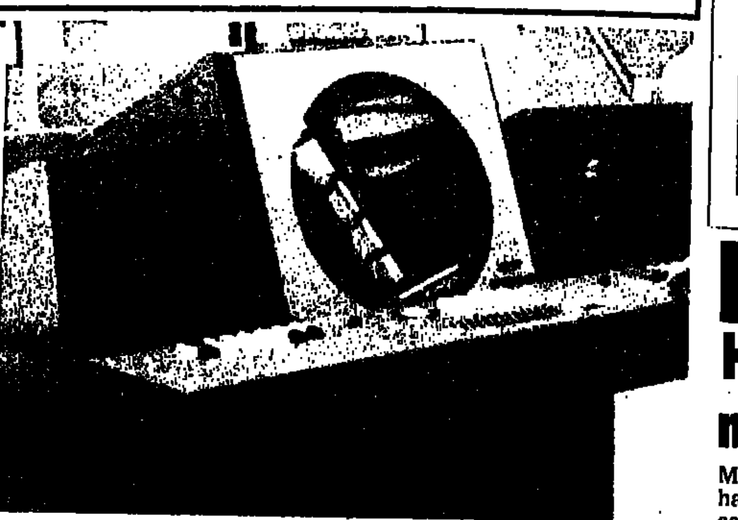

ON display at Farnborough International '80 air display is the Marconi Radar universal console as proposed for the Ministry of Defence UKADGE, UK Air Defence Ground Environment project. The console is backed by Marconi's innovative Locus 16 modular computer system, which pioneered the use of dispersed processing elements throughout a system. Marconi is part of the UKSL consortium which also includes Plessey and Hughes of the US. Hughes is bidding its 5118 18-bit military minicomputer for the contract, which is expected to be placed this week.

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It's all change for Prestel exports

AREGON's Prestel licence agreements with its major US customer, GTE, and with British Telecom, have been renegotiated — but this time on a non-exclusive basis.

This means that GTE can now investigate other systems, Aregon can sell to other potential US public service providers and British Telecom can also sell directly to the US market and may set up a North American office.

The feeling within British Telecom is that the previously exclusive agreements had put the UK at a disadvantage in the face of the French and Canadian efforts.

The Department of Industry is also understood to be organising a joint approach to exporting Prestel and UK versions of teletext.

A separate agreement has been reached in principle for a team effort to sell GEC-based Prestel to PTTs worldwide, with the Prestel organisation supplying the software, GEC supplying the computers and Aregon providing support and consultancy. The range of services offered would be broadened to include education and project management, such as running trials.

Agreement

This agreement is similar to the Tristel arrangement of last year (CW, February 8, 1979) which never reached a formal contract, but resulted in Aregon being contracted by the West German Bundespost to develop an X25 gateway for the Prestel system it bought from British Telecom.

Exporting viewdata systems not based on GEC computers to PTTs remains open to competition.

Aregon's collection of agreements further includes a contract to provide GTE with a series of reports on the current status of viewdata technology around the world; GTE says it intends to retain Aregon to develop "viewdata-type and other computer software".

Development

Asked if Aregon's reports on viewdata technology might not be biased, managing director John Pearce said: "Either you know a lot about something and you are biased, or else you know nothing and you are impartial."

Commenting on the slow development of viewdata in the US, Pearce said that despite much talk last year about forthcoming trials this year there had only been one other besides the GTE/Aregon corporate-user trial based in Tampa, Florida: The one AT&T was running with newspaper publisher Knight-Ridder in Miami, operating under the name Viewdata Corporation of America (CW, September, 1979).

GTE's trial had shown up three main types of participant: Potential information providers, public service operators and in-house users.

Aregon was now free to support would-be public service operators and as more Knight-Ridder-like trials started up over the next few years, Aregon aimed to be supporting as many of them as it could.

The in-house, private system market had been slow firstly because of the recession and secondly because nearly all potential buyers wanted specialised turnkey systems rather than the standard product Aregon had originally hoped to sell.

NCR adds ADDS

● From front page

as Mitel Corp of Canada launched a bid (CW, July 31), even though that approach was extremely unwelcome and has run into trouble in the US courts.

Mitel's tender offer was for $11 a share, plus $25 for the preferred stock, valuing ADDS at about $55 million. It runs out today (Thursday), but on the directors' recommendation, shareholders are likely to prefer NCR's offer of $12 a share and $27 for the preference stock for a total of about $60 million.

NCR is remaining tight-lipped about why it wants ADDS; although the company is still primarily a VDU maker, it is diversifying into the micro business systems market and at the end of the year is due to launch a new product built around the Zilog Z8000 16-bit micro and running a version of the Pick Reality operating system (Software File, August 28). Although this machine would address substantially the same markets as NCR's 8100 and 8200 series, there should not be a serious conflict since NCR sells to end users whereas the ADDS systems would go through OEM systems builders.

Des system with all mod cons sends admen H&C

ADVERTISING copywriters in the US are shaking in their shoes following the development by a publisher in Ohio of a computer program for writing the text of property advertisements.

The estate agent customers of a chain of suburban newspapers and property magazines are simply filling in forms giving the details of the houses they wish to sell, and out of the computer comes the finished text along the lines of "Desirable residence with all mod cons . . ." to be set in type without human intervention.

It has taken publisher Harold Douthit and his two programmers four years to pin down all the variations needed in property advertising and devise a way of producing passable, grammatical sentences automatically.

Douthit is not revealing details of how the syntax programming works, but he points out that the system weighs different features of the properties and puts in more or fewer of them according to the space available.

It also makes some choices of wording at random along the way, so the same specifications will not produce the same text twice. Thus customers who do not like an ad can run the program again until they get one they prefer.

Emphasised

The "psychographic characteristics" of different groups of people in the market are also built into the system so that the features each group is interested in can be emphasised if need be.

The software runs on GE's Mark III time sharing service so estate agents anywhere in the country can feed in their ads online so long as they have a terminal.

At the printing plant there is a direct link to the Compugraphic phototypesetter so the output text does not have to be keyboarded. Customers are charged $4 for each ad written.

Another Gamma company folds

FORMER Gamma Associates member, General Terminals and Systems, which used to be called Gamma Telecommunications, has gone into voluntary liquidation with debts exceeding assets by an estimated £160,000.

According to liquidator, Peat Marwick Mitchell & Co, unsecured creditors include Case, AW Consultants and SK Computer Systems. The Lear Siegler marketing operation of GTS (UK) is now owned by Riva of Ascot. GTS (UK) has no links with General Terminals and Systems (Scotland) Ltd, the wholly owned subsidiary of Computer Services Scotland.

East Germany catches up

● From front page

translation. Thus the instruction stream is divided into two, and one processing unit (two U830 chips plus the microcoded instruction set and peripheral circuitry) handles the data and a second identical one does the address translation. There is a separate memory management unit which allows up to 128K-words of main memory to be addressed.

Using the U832 arithmetic co-processor the mini can do fixed point 16 and 32-bit arithmetic and floating point arithmetic on 32 and 64-bit words.

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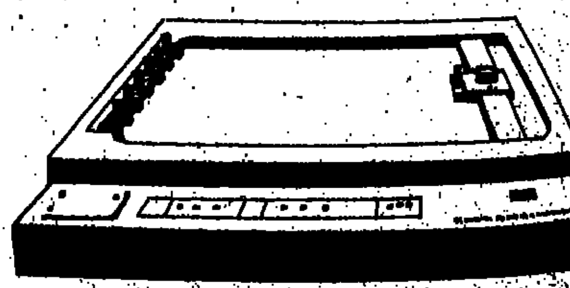

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NEWS IN BRIEF

High speed multiplexer

MODEM supplier Racal-Milgo has launched a range of statistical multiplexers with a channel rate of 9,600 bps and a line rate of up to 19,200 bps. Called Omnimux, the range contains three models, for eight, 16 and 32 channels.

Racal will make no comment on plans to launch the devices in the UK until its contract to market Timeplex multiplexers exclusively expires on October 1, a company statement said.

Belgian jailed

THE Belgian charged with trying to obtain the source code of the Adabas database management system (CW, August 21) has been sentenced to four months in jail and fined $500 in Washington.

HP's price cuts

HEWLETT-PACKARD has announced a 14 per cent price reduction on the HP 3000 Series III business computer. The new price tag of £52,992 purchases a Series III system which includes 128K-words of memory, a VDU console, a 1600 bpi mag tape drive and a 50 megabyte disc drive.

Free compiler

ANXIOUS to promote the Cobol II/3000 compiler, Hewlett-Packard is offering it free to all purchasers of HP 3000s.

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IBM shake-up for mass storage

CHANGES in data storage management on IBM systems as significant as those brought about in the communications area by Systems Network Architecture are in the offing now that IBM is promoting its Hierarchical Storage Manager as a key product.

Introduced about three years ago to provide an automatic safety net for data on the 3850 mass storage system, Hierarchical Storage Manager is now being extended to cover all disc and tape devices including the new 3380 and 3375 disc drives.

At the same time a big question mark hangs over the future of existing data storage products like the 3850 and the ageing 3340 tape drive family.

Last week IBM in the US cut purchase prices of 3340 units by an average of 20%, following cuts of between 10% and 18% in Europe in June, and the company looks as though it is staging a clearance sale before the introduction of the streaming tape drive codenamed Okatillo.

With quick loading tape cartridges and a very fast read speed Okatillo will provide an effective method of backing up high capacity disc drives like the new 3380 and 3375.

Back-up using magnetic tape is an important feature of the new Release 3 of HSM.

Frustrated

Users of the 3850 are frustrated by the slowness of the 3850 as an online disc back-up system and its future is seen as being purely archival. Only 300 systems have been installed worldwide since its introduction in the mid-1970s.

Earlier this year in a bid aimed at shipping more 3850 hardware IBM introduced slower but much cheaper 3850 add-on units called Storage Extension Frames (CW, March 20). But some IBM watchers believe that IBM will scrap the 3850 in its existing form, with its cartridges of 3-inch tape that slot into a honeycomb structure, and bring in a mass storage system employing floppy discs.

Explosive

Underlining the significance of Hierarchical Storage Manager, IBM stated in its June 12 Data Processing Newsletter, "Customers will be well advised to include the implementation of HSM in their plans if they wish to manage in an orderly fashion the explosive data growth that now faces them . . . It will assist them both in the short term and in the long term in meeting their operational and systems goals."

Briefing

Datapoint leaps up

A GREAT leap upmarket is planned at Datapoint, whose present product line, marketed in the UK by Ventek, is built around 8-bit microprocessors. A 32-bit computer, designed in-house using bit-slice technology, is under wraps at headquarters in San Antonio, Texas, and is set for launch later this year.

Although representing a major expansion of the company's power range and to feature a new operating system, the machine is also intended to support all the company's existing software. Ventek is likely to add the new machine about one year after the US launch.

GE $237m bid

STEPPING up its drive in the microelectronics field, General Electric of the US intends to make a takeover bid worth about $237 million for Intersil of Cupertino, California. Intersil's products include add-on memory for IBM systems and the 12-bit IM 6100 microprocessor which emulates the instruction set of the Digital Equipment PDP-8 minicomputer.

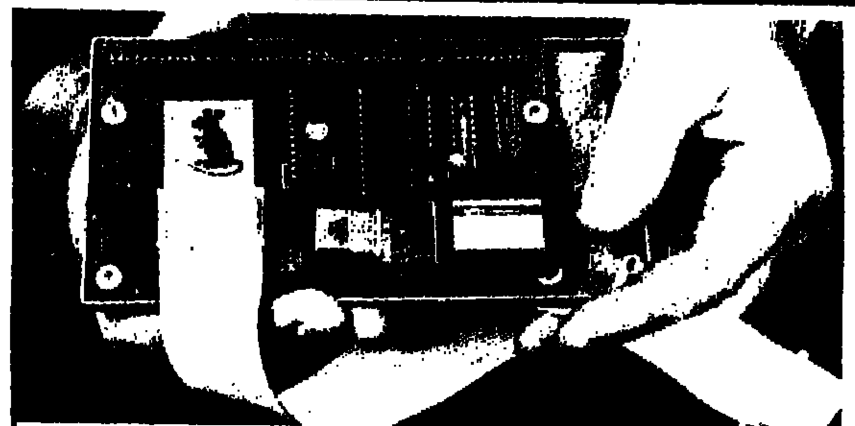
Mini date

THE smaller version of Digital Equipment's VAX-11/780 32-bit mini is set for launch before the end of the year, and may be called the 11/750 rather than 11/580 (CW, August 14). A microcomputer version is also in the pipeline, and PDP-11/24 and 11/64 models and an LSI-11/33 are pencilled in for launch within 12 months.

Personal

CLIVE SINCLAIR, the calculator pioneer, is planning to introduce telesoftware for his ZX80 personal computer next year. This will mean that ZX80 users can use the Prestel system to obtain programs for the ZX80 written in Basic ...

News, page 14



This is not a better mousetrap, but Kingston Computers of Bridlington, Yorkshire, still hopes the world will beat a path to its door for the range of enhancements for the Commodore Pet it showed to dealers last week at the Personal Computer World Show.

This one is the £135 KC-1 Netkit which gives the Pet an RS232C serial interface port and ten new Basic commands enabling the user to control it from an external keyboard.

Other products from Kingston include the £1,000 Robotron daisy-wheel printer and the KRK-2 Pet keyboard enhancement that gives "warm reset" recovery from program crashes.

● More details of the show on page 11.

Camden chooses IDMS — after Total failure

HAVING limited its selection study on databases to ICL's IDMS and Cincom's Total, the outcome of Camden Borough's database evaluation looks like a foregone conclusion, since Cincom resisted all persuasion and declined to tender. But ICL is getting no bouquets from Camden. According to the Borough's report, "ICL consistently failed to meet not only our target dates but their own revised ones".

Camden suspects that the delay was caused in part by both companies' reluctance to become involved in a comprehensive evaluation which was not guaranteed to end in a sale.

The report was produced by the Borough with BIS Applied Systems to identify and evaluate the software requirements of large organisations, with local authorities particularly in mind. Camden was acting as a "guinea pig" for the Database Review Group set up under the Department of the Environment.

Camden has established a ten-year development plan to introduce new computer systems in four areas: housing management, special services, financial management, and personnel. Since the data centred around three main subjects — people, property and

● Turn to back page

Pergamon in retrieval link-up with French

WITH the aim of becoming the major European force in online information retrieval, Pergamon Press and Télésystèmes of France are to pool their existing resources and acquire other companies and databases in the information retrieval area.

Ambitious Pergamon is still very much a newcomer in this field, having acquired the Infoline service from its financially embarrassed backers only about three months ago (CW, June 19). Télésystèmes, whose ultimate parent is the French PTT, has operated its Questel information service in France since 1978.

The two firms are setting up a jointly owned company to realise their expansion plans, including the establishment of jointly owned subsidiaries outside the EEC. In addition Télésystèmes has paid cash for a 35% share in Pergamon-Infoline.

Pergamon believes that its expertise in compiling information databases is complemented by the proven ability of Télésystèmes in software development, networking and data processing.

Infoline, which will be marketed by Télésystèmes in France, is being moved from a Univac 1100 system at GSI in Slough to an IBM 4300 at the Scicon bureau in Milton Keynes, and Pergamon is still evaluating alternative software for running the system (CW, July 3).

When disaster strikes . . . . .

DISASTER is the eventuality for which a hot standby service called Restart is being set up. The service will be run jointly by the Computer Resources Group and Massey Ferguson and will be based on a four-megabyte IBM 370/158 at the agricultural vehicle manufacturer's Eurocentre in Birmingham.

The 158 will be totally dedicated to the Restart service, and will be available to any subscriber within hours of his installation crashing.

A standby service for very big IBM users, based on a dedicated Amdahl machine is also being considered by Computer Resources.

Restart sales manager Tony Baker of Computer Resources told Computer Weekly that the 158 could be used by the disaster-struck subscriber for about six weeks.

This was considered long enough for him to set up a replacement system in co-operation with IBM. After six weeks, penalty charges would be imposed. A substantial invocation charge would probably be needed at the start to prevent a subscriber taking over the 158 for trivial reasons.

The ongoing charge for Restart subscribers will be at least £25,000 a year on a minimum three-year contract.

● Computer Resources launches APL service — page 11

Pay row may hit Prestel

PRESTEL, the Post Office viewdata service, and telephone billing face disruption by strike action later this month.

This follows the rejection of a 23% Post Office pay offer by the Society of Civil and Public Servants.

The union says it wants another 5% for its 9,000 members at the corporation to bring them in line with the salary levels of Post Office engineers.

Parity

Chris Proctor of the SCPS commented, "It's not so much that we are dissatisfied with the 23%. It's more that we want our members on a par with the engineers.

"We will hold a series of meetings over the next two weeks to see if our members agree to the action. We should know the outcome by the end of the first week."

Proposed action would centre on three Post Office computer sites, but the union hopes to include non-DP staff in its push for parity with the engineers.

Proctor went on, "We want to get all of our members involved on a roller basis. They would be out for about half a day a month."

Last year's billing strike lasted for 22 weeks and cost the Post Office more than £100 million because of the interest rates it had to pay on borrowed money.

Finals day

THE final of DP's own Olympics, Computastars, is being held this Saturday, September 13, at the New Alexander Stadium, Perry Bar, Birmingham, and starts at 10 am. For further details, turn to page 22.

INSIDE THIS WEEK'S CW....

Computerview on jobs ... 2
Micro News ... 14/15
Last rites for KDF9 ... 16/17
JOB OPPORTUNITIES: PAGES 31-56

New from Cifer... ...the 2684 User Programmable Terminal
Introducing the Cifer 2684 User programmable terminal at the top end of the 2600 range of compatible VDU's. The 2684 provides a full 64K bytes of user RAM, supporting Industry Standard CP/M operating system with in built 260K byte floppy disc drive.
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EDITORIAL		
Keith Jones	261	8344
Tim Palmer	261	8031
Claire Gooding	261	8303
Rory Johnston	261	8025
Eileen Stainer	261	8806
Bernard Allen	261	8035
Pamela Rowe	261	8361
Paul Fisher	261	8170
Donald Kennett	261	8719
Mike Marples	261	8042
Don Mitchell	261	8042
Chris Youett	261	8543
Nancy Pocock	261	8543
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ADVERTISING – Display		
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COMPUTERVIEW

Generators of jobs

THE Trades Union Congress in Brighton last week was a pretty depressing affair if the television and newspaper reports are anything to go by.

Perhaps the most important demand made at the conference was the one highlighted by Chris Youett on page 18: Sid Weighell of the NUR calling for industry-wide trades unions on the German model.

Chris Youett also concludes that the losers in the post-industrial world are likely to be semi-skilled and manual workers, and all the evidence points in that direction.

The computer and related industries are identified as the prime threat to employment – but with a little more imagination they could become much more substantial generators of new jobs.

The idea that qualifications and academic achievement count for little and are unnecessary for a successful career in the computer industry is a substantial exaggeration, but it does have some substance to it.

Honeywell's initiative, reported last week, in offering pupils in their last year at school a comprehensive one-year evening course in computer appreciation does the company considerable credit, especially as the lecturers are volunteering their time. It is important that the courses should not be confined to the most academic pupils and that anybody who shows an interest should be encouraged to take part.

It is vital to the future health of the computer industry that as many children as possible leave school with a full understanding of what the computer is, and what it can and cannot do – not least to balance the torrent of ill-informed outpourings which appear daily in all the media.

Honeywell's initiative is admirable, but unless every other company big enough to be able to afford it takes up the challenge and offers similar facilities to schools in its locality, it will count for nothing.

ICL Papers

REVELATIONS from the "ICL Papers" – internal documents putting the ME29 sales force on a broad offensive against the key competition – have generated some heat.

Since they were for internal circulation only, it is not surprising that instructions to steamroller requests for expensive tailoring of software to meet individual user needs are expressed forcefully.

The fact that eyebrows have been raised at the contents underlines the continuing need for user re-education.

It seems surprising that any computer user who has been around long enough to need the power of an ME29 should still be ignorant of the fact that while hardware is getting cheaper, custom software is not only very expensive but is inflating in cost month by month.

The downward spiral in hardware costs means the manufacturer's sales force has to run faster and faster simply to stand still. To be successful, a company cannot afford simply to stand still: at minimum it must grow both sales and profits at a little above the industry average.

Where, like ICL, it has an enormous proportion of the whole UK computer industry hanging on its coat-tails, it needs to grow substantially faster than the industry average if Britain is to keep up with emerging computer powers like Japan.

Only two things limit the extent to which users can have their systems tailored to their exact requirements: the willingness to pay the full economic cost plus profit margin for the custom software, and the availability of people capable of doing the work.

ICL is right to be afraid that the ME29 will turn into another British "success" like the Leyland Mini – an unquestioned world-beater which contributed almost nothing to the company's profits. And now is the time to make sure that the sales approach is right – not in 18 months' time after finding out that the first 500 machines installed have contributed ten bob each to the company's profits.

LETTERS to the EDITOR

Employers interested only in under-25s

AS an ex-TOPS student, I have been following the views expressed by Brian Patterson (CW, July 31) and George Penney (CW, July 3 and August 28) with great interest.

I find the comment in Penney's last letter, that (only!) two employers were actively looking for graduate mothers, rather disturbing. Just what job prospects are there for mature trainees, particularly those seeking posts in systems analysis?

From my own experience, employers – and in particular personnel officers – are typically interested only in recruiting the under-25s for trainee analyst posts. In view of the national shortage of suitable applicants, the shortsightedness of many employers is quite amazing, especially coupled with the likelihood of high staff turnover of bright-eyed fresh graduates.

I secured a job with National Girobank as a trainee analyst shortly after completing a five-month residential Management Control and Information Systems course, run by the North-West Regional Management Centre. However, like many of my fellow students, I had no success with a number of other applications. This is very disheartening as the MCIS TOPS course marries management accounting with systems analysis, and is designed to output students to a high-demand job field.

The trouble appears to be that employers simply will not risk taking on non-experienced analysts.

Perhaps the Manpower Services Commission should encourage employers to meet TOPS students near the end of their course, as I believe this would result in a high job-placement rate.

It seems silly of MSC to fund expensive TOPS courses, yet accept that many students, especially mature ones, will subsequently return to the dole queue. Indeed, if TOPS-trained programmers can readily find suitable employment, whereas corresponding analysts cannot, one wonders whether TOPS systems courses should be run at all.

I would be interested in hearing from other people involved in the placement of mature TOPS students in computing jobs.

F. D. MOKRYSZ
3 Welbeck Road,
Ashton-in-Makerfield,
Wigan, WN4 8AR.

Personal privacy

THE suggestion was made in a BBC Radio 4 programme, Real Evidence, broadcast on the evening of August 26, that the membership lists of the Chartered Engineering Institutions were freely available and could be used to compile unauthorised information about the work of individuals.

As far as the IERE is concerned, this is not so: the Institution's membership list is maintained on a strictly confidential basis. By decision of the IERE Council a "List of Members" is now no longer published.

F. W. SHARP
Editor
The Electronics Engineer,
London WC1.

Underwhelmed by industry response

WITH reference to an article (CW, July 17) on Emphatic Computer Services (Stoke Mandeville) Ltd, headed Work for the disabled group seeks help, I am underwhelmed by the response of the British computer industry. We have not received one offer of help of any sort or description, not even a single message of sympathy. I can only surmise that my worst fears are confirmed and the whole industry is run by gigantic computers which have not been programmed with the meaning of the words sympathy or charity.

We have received help in the past mainly from Univac, Kode and Incoterm who are obviously run by warm, caring human beings. Are there any other companies run by such people who will help us? I hope so!

R. A. POTTER
Director
Emphatic Computer Services,
Aylesbury, Bucks.

COMPUTER Weekly is always pleased to hear from its readers. Drop a line to The Editor, Computer Weekly, IPC Dorset House, Stamford Street, London, SE1 9LU.

What's wrong with union-bashing in this country?

THE letter from C. M. Hussey (CW, August 21) regarding trade union power raises some interesting points, but in a way which generates more heat than light.

To take his last point first, what's wrong with union-bashing? Every institution in the country, whether it be the nationalised industries, the multinationals, the universities, the monarchy, Parliament, the Church, all get criticised from time to time. Why should trade unions be exempt?

Mr Hussey asks why, if unions are so powerful, they cannot stop unemployment, etc. Unemployment, the fall of living standards, cuts in social services, are all part of the price of stopping inflation. They are the withdrawal symptoms, if you like, which appear when governments attempt to kick the inflation habit. Stopping inflation is painful – that's why so few politicians try it.

Unions have plenty of power all right. The trouble is that it is mainly negative. They stop things being done. If there had been strong unions at the time that motor cars began to put horse-drawn vehicles out of business, we would still have a subsidised horse-drawn coach industry.

Trade union immunities, which Mr Hussey seems to think are imaginary, are based on a number of Acts of Parliament, of which the most important is the Trades Disputes Act of 1906, passed when the Liberals were wooing the Labour movement. This Act created a body of people who were immune from civil action, rather like the Church in the Middle Ages whose members were privileged in law.

If you agree to work for a given remuneration, that is a contract. No one forces you to agree, and many do not accept the contract, as anyone who tries to recruit programmers knows. We do not have labour camps here.

Finally Mr Hussey maintains that morals "shape themselves to the views of the individuals holding them." In other words, morals are subjective. There is a grain of truth in this, but only a grain, and although such a cynical viewpoint may give comfort to some, it cannot relieve the individual of moral responsibility for his actions. You cannot delegate your conscience to a strike committee.

R. J. SILBURN
Epsom, Surrey.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Paul Holden, of Dublin, who wins £5: THE COMPUTER BOOK Ltd. Teaches the lay person to think like a computer. [illegible]

GOVERNMENT COMPUTER REQUIREMENTS

MINISTRY OF DEFENCE
WOOLWICH
Ref: (CP 16/28/CW)

[illegible] Queen Elizabeth Military Hospital, Woolwich, [illegible] all aspects of patient administration and [illegible] will be expected to be familiar with medical [illegible]

[illegible] the Operational Requirements should be sent to [illegible] CENTRAL COMPUTER AND TELECOMMUNICATIONS AGENCY [illegible] Gildengate House, Upper Green Lane, NORWICH [illegible] quoting the appropriate Reference Nor [illegible] proposals must be received not later than [illegible] October, 1980.

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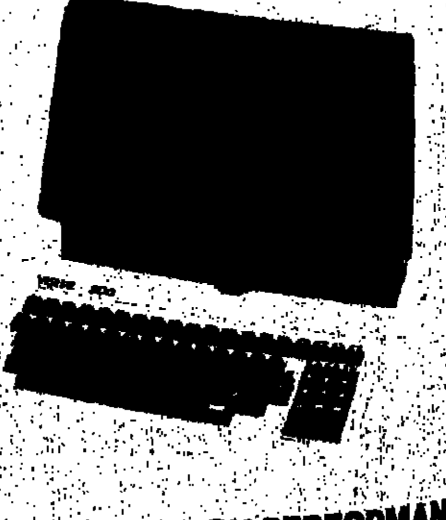

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PO likely to keep data links lead

THE UK has nearly double the number of data links connected to Post Office plant that its nearest rival West Germany has, and this clear lead is likely to be maintained well beyond 1987.

This was one of the findings of the Eurodata 79 Study prepared by Logica and a team of sub-contractors for 17 PTTs in Europe, and now to be sold to companies.

Philip Hughes, chairman of Logica, said he expected that by the mid-1980s Europe would lead the world in data network usage and communications technology and would therefore be in a good position to export elsewhere.

Impact

The report, prepared at a cost of over £1 million, has now been approved by all 17 PTTs, having been submitted to them in March. It has already had a major impact on their investment decisions and attitudes, Hughes said.

At the beginning of 1979, the number of terminals used for data communications had reached 625,000 – double the estimate made in the 1972 Eurodata Study conducted by PA Management Consultants. The new figure for 1987, four million terminals, is four times the previous estimate.

This figure excludes the number of television sets used to receive viewdata services in the domestic market, which was put at 2.7 million for 1987.

Useful

John Bean, head of marketing intelligence at British Telecom, said: "The convergence of computers and telecommunications will hit us hard, but will benefit us greatly. Our plans will be based on this report, so it is particularly useful to outsiders. We will make further studies, but others must do so as well, because the PTTs cannot determine everything."

Tim Johnson, the Logica director responsible for the report, said, "Last year there were nearly 400,000 data connections and this was only 0.3% of telephone connections, but they brought 5% of the revenues.

The sum was $2,000 million, which compared with $7,000 million that the bureau service industry earned at the same time. In 1987, we expect data connections to bring the PTTs $8,000 million, possibly 10% of their revenues.

"PTTs and manufacturers will have to run a good deal faster than they are used to. For example, they will have to deliver 1,200,000 modems from now until 1987 and this is three times as many as the PTTs have delivered in their whole history.

"Although the market is worth billions of dollars, the issues are complex and manufacturers need to look at it in detail. Those that do will make a killing, because they will find that much cost-saving equipment is in short supply – and that is a very nice way to sell. But it won't happen just because it has been forecast; it will happen because people really get their act together."

Split

ITT, IBM, Racal, Siemens and Rank Xerox have already signed for copies of the report, priced at £30,000, including two more volumes to be published by the end of the year, which reprocess the same information into analyses of various market sectors.

The three volumes are also being split into modules, ranging in price from £1,000 for the overview to £6,000 for the terminal market analysis.

300 jobs go

HONEYWELL cut-backs announced last week for its Controls Systems business are going to cost more than 300 jobs. Some 200 will go when Honeywell closes its Uddingston plant by next summer, and the company wants 130 voluntary redundancies over the next six months at its Newhouse factory.

Seven Japanese companies in new VLSI project

SEVEN Japanese companies belonging to the VLSI Technology Research Association in Tokyo have started a three-year project to develop practical VLSI circuits and computers based on them. They will study crystallisation, manufacturing and LSI circuit mounting.

Fujitsu, Hitachi, Nippon Electric, Toshiba and Mitsubishi Electric are to invest a total of 10 billion yen ($50m) into the project financing fund. Two joint ventures, Computer Development Laboratories (Fujitsu-Hitachi-Mitsubishi), and NEC-Toshiba Information Systems will also be taking part.

The project will continue some of the development work left unfinished when a previous joint government-industry project was set up to create VLSI electronic circuits and involved 30 million yen ($150,000) from the government and 40 million yen ($200,000) from industry.

Its results included the development of nine kinds of VLSI device production equipment, such as an electron beam circuit drawing facility; and the creation of a 256K MOS dynamic RAM and a 1,000 gate array bipolar device.

For ICL Users – an exhibition and seminar
Telecommunications and Networking

A forum of ideas for ICL Users. Presented by Users of ICL hardware, an exhibition and seminar is to be held at The Mercury Hotel, Garforth, Leeds from the 29th Sept. – 2nd Oct. 1980.

All ICL Users and data processing managers are invited to the exhibition which is free (open daily 10.00 a.m. to 6.00 p.m.), or to register for the seminar entitled "Telecommunications and Networking" at £25.00 per head (two hours daily, excluding Thursday).

On display will be the AIM data entry system, the DMS Remote job entry station, the DMS QLSA emulator, the Teknos 1675 terminal system, the Teknos 1603 front end processor, the DMS Universal transmission system, as well as demonstrations of accounting software and computer supplies.

This is an exhibition designed to assist ICL data processing managers in evaluating their existing computer arrangements in the light of current User developments.

Full details of this event can be obtained from the Consortium organisers –
Mrs. Penny Roberts, Spanverne Investments Ltd.,
Arena House, 46 Broadway, Letchworth, Herts SG6 3BX.

Row puts ESA ops' jobs in peril

A BIG question mark hangs over the future of the 50 contract operators at the European Space Operations Centre at Darmstadt, West Germany, who were formerly employed by Datasolve Knights of the UK. The European Space Agency intends to pay them directly until the end of the year, but is seeking a new firm to supply operations staff.

Knights severed its links with its operators at Darmstadt following demands from the West German tax authorities for taxes said to be owed by many of them (CW, July 24).

An ESA spokeswoman told Computer Weekly that the new firm would be expected to take over on January 1, 1981, and would have to decide itself whether to employ any of the 50 existing operators. She said that ESA had received offers from a lot of firms keen to take on the job and that their offers were now being studied.

She added that it was now unlikely that ESA would sue Knights.

Knights started supplying operators to the Darmstadt site in 1977. They have been operating a variety of systems there including the two ICL 2980s that process digitised images beamed down to earth by the Meteosat satellite. The 2980s generate the pictures that are now a normal feature of weather bulletins on television.

Teledata-based service for travel agents

A NEW service for travel agents and the general public based on the I. P. Sharp APL time sharing service is due to start on January 2. Called Traveldata, it is based on the Teledata concept, where girls answer telephone queries, but in this case they will have VDUs in front of them attached to the I. P. Sharp service.

The ABC Travel Guide is already on the Sharp service, and for Traveldata, airlines, "bucket shops" which sell cheap tickets, and tour operators will be able to rent pages at £40 a week for the first page and £20 for subsequent pages under a minimum three-month contract.

A page of information will consist of 18 80-character lines and initially will be confined to aircraft seats.

The system has to be up-to-date, and travel agents will telephone their alterations to an answering machine which will be cleared at least once an hour.

Traveldata will make random calls to the system to make sure that the information providers are keeping their information up-to-date, and those which do not will be barred from the system.

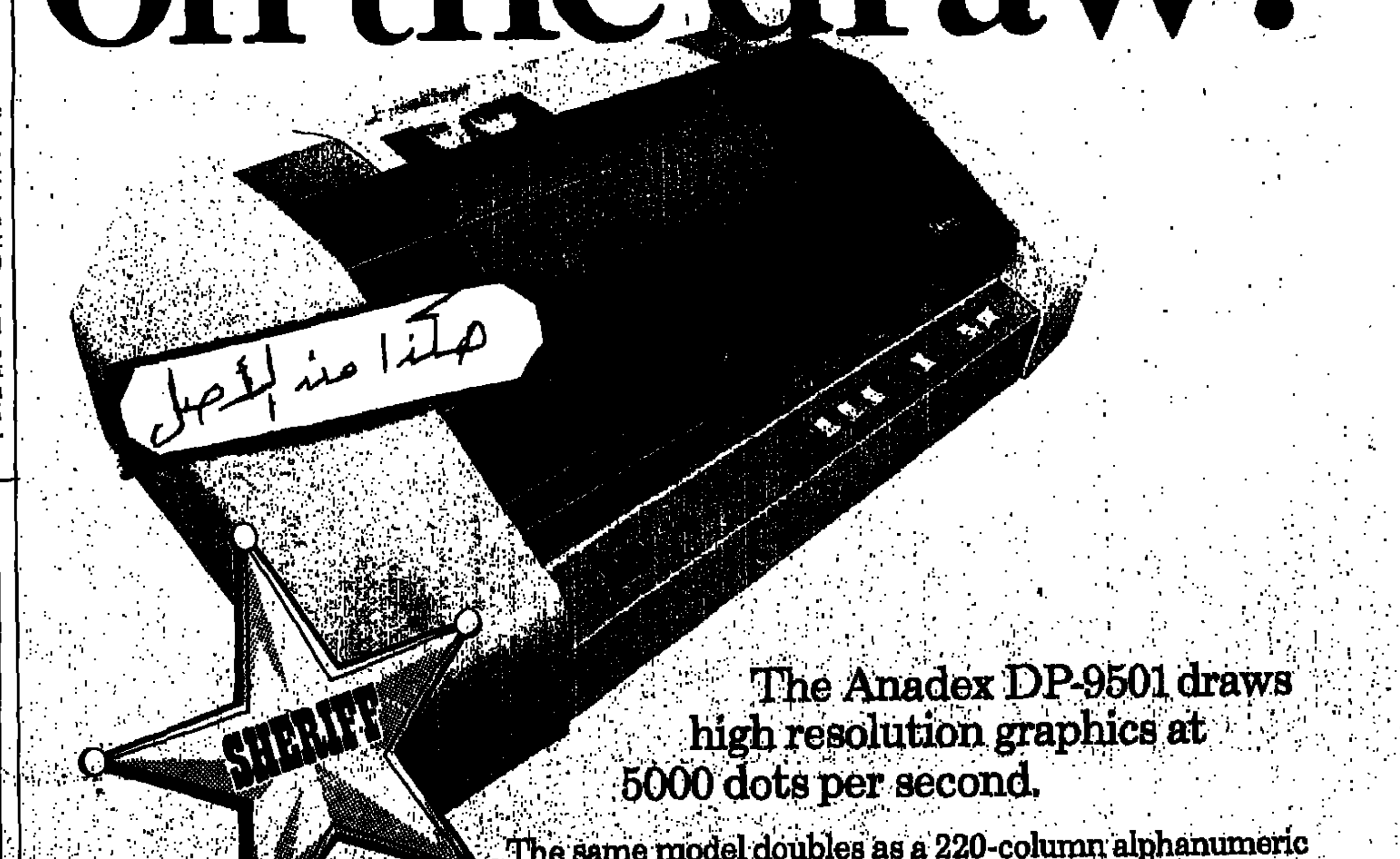
Discount on printers

ZYGAL Dynamics of Chesham, Bucks, has introduced a 15% discount for sales to universities and colleges. The discount covers Diablo and General Electric printers and Zentec VDUs.

Zygal is offering the TermiNet 2000 series of printers as a result of a recent distribution deal with the US General Electric Corp.

Ken Burrough of Zygal said, "The universities are incredibly price conscious." He also pointed out that local government's buying policy does not favour an approach from individual salespeople.

Quick on the draw!



The Anadex DP-9501 draws high resolution graphics at 5000 dots per second.

The same model doubles as a 220-column alphanumeric printer with: three interfaces as standard (Parallel bit, RS-232C, Current Loop); full communication facility; look-ahead bi-directional printing; 96-character ASCII character set including descenders and underlining of all upper and lower case letters; 200 cps printing speed; 'snap-in' replaceable ribbon cartridge and optional 2.7K buffer store.

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Anadex Ltd.
Details from Anadex Limited, Dorna House, Guildford Road, West End, Woking, Surrey. Telephone (09905) 6333, Telex 858762 Anadex G.

Downtime

by Chad

"...and if your account's in the red, it shifts into a minor key."

'Tell me all about computers!'

A COMPUTING academic of my acquaintance was moaning to me the other day about a certain type of letter he is constantly getting from students. It goes along these lines: "I am writing a thesis on microprocessors. Please can you tell me all you know about them?"

We get a number of these letters at CW too, asking, "Please explain silicone chips to me," or more often we get phone calls from somebody's secretary inquiring, "What will be the worldwide market for printers in 1985?"

We even had one caller who said, "Can you give us the name of a computer company? We are an advertising agency and we want to take them on as our clients."

My academic friend points out that what his student correspondent means, of course, is "Please will you write my thesis for me?" Certainly this phenomenon is not new, nor is it confined to the subject of computers. I once heard similar moans from an American who lectured at the venerable institution that was once attended by Henry Wadsworth Longfellow. All year long would come a stream of letters from high-school students around the country asking, "Please could you send me all the papers and documents you have relating to Mr Longfellow?"

Occasionally letters would arrive addressed to Mr Longfellow himself, despite the fact that the poor fellow died in 1882. The lecturer spouted his venom not at the kids but at their teachers, who should have been getting them to read the man's poems instead of writing biographies, he thundered, adding that sending the kids away to do little projects was often an easy cop-out for teachers.

I'm sure there is much truth in that last point, but there is one project that could be both instructive and entertaining for some kids, and I have been wanting to suggest it to teachers for a little while. This is a definitive and comprehensive study of one-man bands.

Think of all the different headings that are waiting to be covered in the report: Technology; Artistic considerations, including repertoire (how much is this limited by techn... Financial aspects; Staffing ... about the Unsocial Hours ... tion?); Meteorological acc... ations; History; The Fe... cluding of course oppo... for applying microelectro...

Photographs could be ar... included. The whole thi... just waiting for some kid... dispatched to Leicester ... on a Friday night, armed w... notebooks and Instamatic ... would be a chance for them ... to feel they were pushing ... the frontiers of knowledg...

Well, leaning on them ...

Looping the reference loop

THOSE of you who plough through learned journals will have noticed that the lists of references at the end of papers tend to get longer and longer. There is a good reason for this. The more people you quote, the more entries you get in Science Citation Index.

If lots of people seem to be quoting you, you must be pretty hot stuff, so you take particular care to cite all your earlier papers.

Despite all this, some researchers swear by SCI and say this list of who is quoting whom is the best way to retrieve information from the ever-expanding torrent of scientific literature.

I mention this because of an interesting article in the latest number of the Communications of the ACM. Called On Folk Theorems, this is an elabo... intellectual joke which I will ... attempt to explain, by David ... rel of IBM's Watson Resea... Centre (yes, IBMers do hav... sense of humour).

The notable thing about ... paper is that it includes a ref... ence to itself. I am waiting ... gerly to see whether SCI's com... puter blows up or goes into ... permanent loop as a result.

GILB'S MYTHODOLOGY

Simplification — one of the most powerful aids you can use

Tom Gilb is an independent consultant, lecturer and author on computing topics.

HOW much will it cost? When will it be finished? How many programmers will you need? Will it ever work?

These are our daily food — and, too often, we need to simplify our diet to prevent indigestion. But we continue to eat traditional meat, and the belly-aches are a foregone conclusion.

Is there a textbook on "How to simplify"? A course on it? Or, even more to the point, a course on applied simplification for data processing problems? I don't know about them if they do exist — and specifically I have been unable to find the concept of simplification discussed in computer literature.

Dramatic

I find, however, in my consulting work, that simplifying a problem, before "solving" it, is one of the most dramatic and powerful things I can do. Simplification is initially an intuitive reaction on my part. I simply cannot waste my time on frustratingly complex problems, when I can simplify the nature of the problem by applying a little imagination.

About five years ago, I made some notes on principles of simplification for data processing projects. They have found their way into the manuscript of my next book, Computerware Technoscopes, and I would like to share them with the readers of this column.

At the risk of allowing the reader to misunderstand the principles for a few weeks, I shall summarise some of them in this column, and treat them in more depth in succeeding columns.

In the meantime I encourage the reader to take his most pressing and difficult problem and see if he can simplify it dramatically, using these principles, or his own principles, (which he is asked to share with readers by means of a letter).

Principles

1. Include simplification ideas as high priority goal statements.
2. There is always a simpler way. Keep on looking for it.
3. If you can't find a simple enough alternative, then try looking at an entirely different set of alternatives.
4. Identify your highest-level, that is fundamental, goals, clearly. This will enlarge the set of possible solutions for you, and help you find a simpler solution.
5. Divide your solution into two or more different solutions. Sometimes "many simple solutions" is simpler than one complex one.
6. Change the problem formulation points of view so that it still satisfies the problem originator, but so that you get more freedom to select a simpler solution.
7. The "Blue Sky" principle. Dare to dream the simplest and most direct approach to the problem. Then work your way slowly down to the first practical step below this ambition level. This is likely to be at higher level of simplification than a bottom up approach.
8. Open the design process to competition, and state the simplification goal as one of the winning solution attributes.
9. A series of simple designs for processing a complex stream of problems will tend to be simpler than an integrated design.
10. Automate: make system complexities simple for people by transferring complexities to computers. For those who think this is preaching to the converted, we constantly run against this principle in code design, form design and work-procedure design.
11. Make a SELF-ADJUSTING system. Design the system so that it collects data on activity during operation, and can make use of this data to alter its own actions. (We are not talking about artificial intelligence here, but about simple things like a record activity counter being used to reorganise records into optimum locations).
12. Deliver the system in evolutionary increments, so that cause-effect understanding is simplified and actual experience can be used in future delivery steps. (I have handled this in several earlier columns (CW, Aug 2 and 16, 1979.) Revolutionary system delivery is usually far too complex to understand well enough to control costs and risks.

This brief presentation of the principles may not be sufficient to make clear what I intend, or to convince the reader of their validity. More will be forthcoming.

I do hope that some of you will be stimulated to try to apply these rules to your current problems, and that your own present ability and imagination, triggered by these simplification principles, will produce a simpler solution than you had before you read this column.

Perhaps some creative reader can simplify this collection of simplification principles.

TEN YEARS AGO

From Computer Weekly of September 10, 1970.

Customers of Belfast Savings Bank were provided with real time counter services, following the installation of a Burroughs B500 at the bank's headquarters, at a cost of £300,000. . . . Plessey Electronics Group introduced an automatic remote meter reading and load control system, predicted to result in the disappearance of the "gasman" at our doorsteps. . . . Plessey announced record profits for the second consecutive year, pre-tax profits for the third quarter of 1970 being £7,460,000. . . . The Strip Mills Division of the British Steel Corp updated its computer power by ordering three IBM 360/50s and a 360/40, together worth £2 million. . . . Rank Xerox planned to set up a product development laboratory in the UK. . . . Business Computers Limited acquired an interest of 46.9 per cent in Addo-X Canada. An ICL system 4/70, with a 256K-byte capacity was bought by the Hungarian Economic Planning Office, for £700,000.

CONFERENCES

MICROPROCESSOR Applications in Underwater Technology is the theme of a one-day seminar to be held in London on November 6. Organised by the Society for Underwater Technology, the seminar will describe applications in current use. Further information is obtainable from Joan Pye, SUT, 1 Birdcage Walk, London SW1H 9JJ. Tel: (01) 222 8653.

The Federal Office Automation Conference takes place in Washington DC from November 4-6. It is designed to bring together people from all levels of involvement in federal government office automation. The main speaker will be Dr Jim Schlesinger on state-of-the-art technology to be addressed by Office managers and the Federal Office Institute. For further information, write to Federal Office Automation Conference, PO Box 8111, Wayland, Massachusetts 01778. Tel: (617) 358 5115.

Music, Micros and Terminals is a conference being organised by members of the British Computer Society and the Institute of Information Scientists. It will be held in Manchester from November 6-7. There will be an exhibition on the second day of the conference. Day one will include a review of the present capabilities of mini, micros and terminals. Further information can be obtained from Jo Rinaldi Pfister (GB), Elton House, 50 Grosvenor Rd, Manchester, M16 9HW. Tel: (061) 872 0123.

The Canadian Computer Show and Conference will be held in Toronto from November 11-13. It is organised by the Canadian Information Processing Society. Show Director information: contact Reg Lockie, Show Manager, Industrial Trade Shows of Canada, 34 Buttercup Rd, Toronto, Canada M4W 2X5.

FOCUS

Keeping up with the conferences

BARELY a day now passes without some lavish brochure arriving on the DPM's already cluttered desk giving details of the next scheduled computing conference, congress or exhibition. Getting aboard all such events could be a full-time job, one requiring close liaison with travel agents, airlines and presumably your boss.

Whether the boss would be so kind and understanding if he actually studied some of the brochures is far from certain. One such brochure, for example, extolling a World Computing Congress, devotes three pages to detailing the sessions. The following 16 pages present a spectacular guide to what is referred to as "post-Congress travel". Delegates to the main event are encouraged to divert their studies to notable computing areas centring on exotic beaches and islands.

Much on the same lines is the forthcoming 8th World Computer Congress, promoted in the UK by the British Computer Society, which appears to straddle both Tokyo and Melbourne later this year. Once again there is an imposing list of special events for those BCS members seeking relief from attending such sessions as Computer Networks, Data Base Information Systems or the highlighted session on The Role of the Computer in Mining. The fringe benefit visits include a visit to "Dynamic Tokyo" and the Great Barrier Reef. Presumably underground studies at both locations are being encouraged.

Snag

One major snag, however, that crops up with most such international event enterprises — apart from finding the time to attend — is that of working out the costs. The 8th World Congress quotes an attendance price range of 52,000-57,000 yen or 210-250 Australian dollars. A UK course in international currency conversion rates could well prove popular.

But however favourable the current currency conversion rates, UK DP managers may well prefer to climb the near passing Computermacs, or possibly economise by taking out a season ticket to Wembley. This year the Wembley Conference Centre has already staged Microsystems 80, MIC... Microforum Europe and ... viewdata and word processing ... sions.

This month will see the ... cated DP traveller packing ... bags and passport for the ... exhibition and conference ... He would be well-advised, ... dentally, to pack a pair of ... able shoes and track suit as ... show has over 750 stands ... over several halls.

But even before setting ... the undoubted enthusiasm ... charms and delights of ... DPMs are being advised to ... firm their bookings for the ... UK computing exhibition ... 80 in early November. Pres... time, funds and mental ... DP professionals can just ... in the 1980 State of The Art ... view Conference before ... up for Christmas.

Healthy

There can be little doubt ... the state of the DP conferen... exhibition art is currently ... healthy. For the first-time ... ser user and for the ... student, there is a need to ... touch with trends and ... In addition to providing ... guished advice on ... velopment, exhibitions ... ences present an opportu... the visitor to research ... contacts, share problems ... discover just what is going ... outside his own immediate ...

In fact, he could end ... conference speaker is ... right, in which case ... with his installation and ... increasingly brief. Such ... tions could be recognised by ... total dedication to ... year's organisation and ... favour of this year's ... Recognition factors would also ... clude a high staff turnover ... keen line-up of hopeful ... salesmen.

But just in case the ... pressures of covering all ... events prove too much for ... dicated DPM, help is at hand. ... George Washington Hotel ... which has been active ... promoting European ... seminars, is presenting ... on investigative coverage ...

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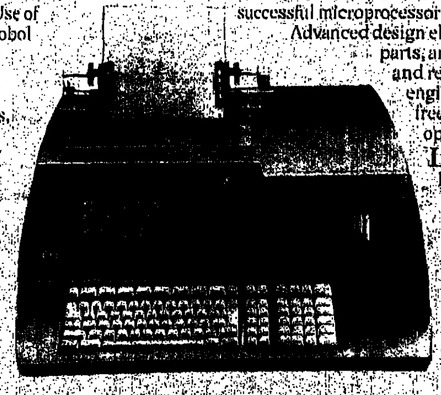

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PAGE SIX

for programmers and analysts

by Pamela Rowe

The ins — and outs — of a job in programming

People come into programming in many different ways. Here our new Page Six editor introduces herself with a striking account of her entry into — and exit from — one job which gave her a deeper insight into the concerns of all who read this page.

Pamela Rowe

"MINE'S a pint, Terry," someone called. He mumbled over his list — four bitters, one a shandy; vodka 'n' tonic, half of cider, whisky mac and two Cinzano lemonades. We dispatched him to the bar and got our heads down over our favourite pub table to chew the latest redundancy rumour.

This topic had kept us going over many a Friday leaving booze-up since the day in June when suddenly the rest of the computer department started slipping into the Programming Room. Mystified, we programmers had put aside our coding pads, and soon afterwards the managing director, John Holluran, made his entrance.

Silence

In slightly throbbing tones he told us that McCorquodale Books Computer Centre was closing down and that most of us would be made redundant at the end of August. The main effect of this was a deep silence, but after J.H. had left conversation picked up and we soon found ourselves all gathered round the electric kettle and tea-bags.

So, after first over one year in computing, here I was sitting in the pub facing my first redundancy. I had wandered into computing in the circular way that is so common. Initially I had trained in photography and included a stay among the exhibits of the British Museum, before specialising in film. Thereafter I worked in the film-editing departments of Canadian Broadcasting in Toronto, and the Beeb in London. I left with some qualms to become a commissioned Photographic Officer in the WRAF. This proved to have a life-style I had only read about. My batman woke me with coffee in the morning, cleaned my room and looked after my uniform.

It must have been a reaction against all this comfort that made me, after completing my commission, become a full-time student at university.

This was very different. I found it a life of chaos, with every minute spoken for twice over, continual deadlines, and a looming pile of work I could never gain upon. I spent most weekends chained to my desk or fretting guiltily when I finished. And so did everyone else — where were the layabout, parasitic students we all know are so prevalent? Not at my university.

Gratefully I grasped the outstretched branch of a permanent, full-time job. Along with my main subject at university, I had studied some ancillary courses in computing. I enjoyed these, and they stood me in good stead when I applied for a job as a trainee computer programmer with McCorquodale Books of Colchester.

With the other 11 applicants of my batch I filed into the boardroom, and hung on doggedly through an hour of flowcharting problems. I subsequently learned that I had scored top marks and was offered the job.

Reality

As a trainee I wasn't much use until I had been on the ICL Basic Cobol course, held at Manchester. I spent three very happy weeks combating the intricacies of Cobol. It is a well presented course and quite demanding, involving some evening work — not all of which is done in the bar.

After three weeks of Manchester sunshine, I returned to the sharper winds of East Coast reality. The moment had arrived to write my first Cobol program — Glit, GL for general ledger, I for input, and T because it follows S. With the aid of a number of questions and a few hiccups, all went reasonably well.

My course knowledge actually worked and eventually I had produced a pile of coding sheets, 50 pages thick, closely inscribed, to present to the dismayed punch girls. Later I learned that 100 pages, nicely spaced, was more gladly received.

We were encouraged to flowchart in detail, desk-checking the logic before ever starting the coding. This suited my way of working and eventually became the part I enjoyed the most — the creative satisfaction of puzzle solving.

All four of us programmers wrote to a formidable set of standards compiled by Ken, the senior programmer. Once past the bulk, though, they did make a lot of sense. Data-name suffixes for example — DI for disc input, DO for disc output, WW for those in working storage areas, made for much easier comprehension of others' programs and for amendment.

All our applications were commercial; payroll, general ledger, pension, financial plan, etc. The computer centre was a small configuration of an ICL 2903, three EDS, and one FEDS, serving the needs of the parent and affiliated companies.

Optimism

The compactness made it easier to have a hand in more pies. We allocated our own space on disc, wrote our own test data, tested the program — sometimes the whole suite — and copied them to the requisite master, culminating in production of operating instructions and a macro to run the string.

Before I joined McCorquodales in June, last year, the three programmers and one analyst shared a room. Then the department expanded to include me, two more analysts by August, and a third, coinciding with a move to a separate analysts' room, in September.

This mood of optimism continued with the company's decision to order a new, bigger computer — the 2905, and occasioned intermittent pep-talks from our DP manager, John King. He told us that our futures were bright, settled and clear, and not to expect any clouds.

It wasn't long after that before the 2905 was postponed, and Harry the Ops manager began to shake his head. We brightened up when the planned changes to the computer room were carried through, but Harry was never convinced. Even so it still came as a shock that day in June when redundancy was at last given a date.

So there we were, those that had remained to the end, at the Last Booze-up.

Another of those moments has now arrived — I am hanging up my flowchart template, hanging on to my pencil, rubber and my new typewriter. Not that I am leaving programming, but my involvement will be wider and from a different angle.

My aim is to discuss the things we're all really interested in — with the exception of Miss World and the dog's problems. So, in time-honoured fashion, I am leaving you all out there to tell me, as who shot JR, but who still needs shooting (and why); what still mystifies you; what it's like where you work; and simply what you would like to talk about. Then I shall be picking on real topics as aptitude tests — hope luck which one you get! Trade unions in computing, and structured programming versus sectionalisation.

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PAGE SIX LETTERS

Ill met by moonlight

I SHOULD like to respond to your Page Six feature (CW, August 21) on moonlighting.

Firstly, as an employer, in the early 1960s my company used to consider applications from would-be moonlighters to work for us on a part-time freelance basis. Applications were, however, only processed when the current employer's permission had been received in writing. Significantly, but not surprisingly, most candidates withdrew their applications.

Some, however, had apparently sound reasons for wishing to moonlight in the industry and did indeed receive their employer's go-ahead. Of these we accepted some applicants after the usual selection procedures; only a very few of those accepted proved professional in their job, reliable, able to keep their two jobs separate. Most were advised at the end of their first assignment with us that we should not be requiring their services any further. Many were paid off and taken off our work long before the end of the assignment.

For 15 years now we have not even considered applications from moonlighters and our application form is specifically designed to weed them out. An exception is made for college lecturers who have a real need to gain practical experience to counterbalance their theoretical knowledge and where we have, in general, found a reasonable task done to cost, to schedule, and to our standards.

Relaxation

A second job of a completely different character could, at times, be a useful relaxation from the heavily stressed and intellectual demands made on those working in computing — whether operator, programmer, analyst or manager. Thus, while as an employer we would not stop an employee taking an evening or weekend job serving in a pub, permission would certainly be refused for a full-time salaried employee to moonlight within the industry "on the side" as you euphemistically call it.

Employers pay computing people not by time, but by results; the results of creative thought, of intellectual energy and integrity. An employer who allows staff to moonlight on the selfsame type of tasks as those for which he is engaged on a full-time basis is not acting in the best long-term interests of either organisation or individual.

An individual who moonlights without his employer's permission is stealing. If he moonlights for a customer of his employer he is stealing not only the energy for which remuneration is made but also his employer's prospect of doing that job and getting the potential profit and credit for it.

Buyers who connive at such thefts leave themselves open to possible problems with their own staff, disputed copyright ownership — a topic complex enough even when the contractual relationships are clear — problems with security and ongoing services.

To generalise on the "black economy", there are those who feel this shows a widespread level of entrepreneurial drive and ability and as such should be encouraged. Nonsense.

My advice on moonlighting to all non-academics, therefore, is quite simple — DON'T.

MRS. STEVE SHIRLEY
Vice President (Professional)
British Computer Society
13 Mansfield Street,
London W1M 0BP.

Who needs a union — you?

THE DP industry is currently fairly buoyant. There is a large staff shortage. These facts have allowed programmers and analysts to change jobs to secure improved conditions or to avoid over-zealous bosses.

What is likely to change these patterns is the worst recession for 50 years, which is engulfing many of the clients we effectively work for. Escalating software wages, even greater use of packages and a decline in investment all produce strains within our industry.

Moreover, you would-be moonlighters are clearly being seriously challenged. Recruiting in the future may not be so easy.

These changes will occur at a different pace in different areas, but when we become vulnerable to the easy option is none. The mobility is not the only thing affected by recession, so too is your management. Greater pressure for results — faster turnrounds — more pressure; all this may quite quickly leave you with the boot on the wrong foot, and what is more, rather isolated.

The funny thing about unions is that they are just working people having common problems and sorting them out together. APEX, the union I belong to, is far from perfect, but it represents a good way to gain local and national support and expertise, not just now but when you need it.

Who needs a union? Think on it, forefolk.

LINDSAY THOMAS
Smiths Industries,
Putney Vale APEX branch.

Puzzler

GIVEN the two numbers 8 and 11, each in unlimited quantities, exactly how many different integers cannot be formed? Obviously 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 14, 15, 17, 18, 20 and 21 all qualify. Straight away — but thereafter the search for "unformable" integers becomes more difficult. See page 33 for solution.

As a matter of fact, when any two numbers have no common factor, a rule-of-thumb does exist which produces the unformable integers without further calculation. The rule is given in the solution.

SOFTWARE FILE

by Claire Gooding

Flexible bridge for files and WP

SO often are the terms "flexible" and "user friendly" used to describe software products that people are wary of them. But a package from Henco of Wellesley, Massachusetts, not only fulfils the promise but is proof of the power that a relational database can provide.

The package, Info, is used in the US on mainframes to form a bridge between file management and word processing applications, allowing them to play with the inter-relations of up to 10 files at a time.

Implemented on smaller machines the package provides many powerful tools to the user — a development language for applications, query facilities, report generation and the ability to create files which can be accessed by other programs, systems and programming languages. It is also said to work with existing files.

"IBM can't sell you the best programming language for the 4300 series. At any price" say Henco's advertisements in the US. The aggressive marketing line is based on confidence in a product which has been developed over the last eight years to cope with a whole range of tasks.

All-rounder

Info is also an all-rounder in terms of hardware. It runs on the IBM 4300 303X and 370 range and compatible mainframes such as Amdahl under VM/CMS, and at the lower end of the market on Honeywell Level 6 and Prime equipment.

Other versions on the way include Digital Equipment PDP 11/780, Vax environment, and not much further off, versions for the PDP 11/70 under RSX/11 and the Univac V/77.

The product is already available in the UK through Doric Computer Systems, of Watford, which obtained the licence from Henco earlier this year. (CW January 31).

Hands-on

A hands-on test of Info at Prime's headquarters in Hounslow revealed that, even on a small machine its range of facilities is impressive.

As a language it is straight forward and versatile, allowing those inexperienced in the ways of computers to "do their own thing". Even the handbook is written with a breezy disrespect of machines.

That is not to say it is merely a toy for the unskilled. Perhaps its most powerful verb is RELATE, which allows files to be linked to one another on the strength of one common field. A temporary relationship (from which a new file can be created) is established between a selected datafile and up to ten others by the command shown in figure 1.

The datafile-name is any in the user's dictionary, and the relationship-no a number between one and nine which is used as a reference number for subsequent access of fields in the specified datafile.

The item-name is a field which appears in both the named file and the currently selected/previously related file.

The options allow the results of the RELATE exercise to be manipulated; for instance APPEND adds a new record to the related file with the value of the common field duplicated and other items blank.

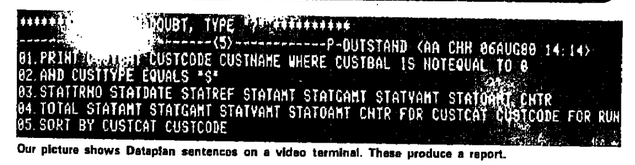
The implementation of Info on Prime uses the Primos operating system, and according to Doric director Mike Hare, makes the most of it. Under Primos Info runs as a shared program and allows users to include their own subroutines written in any language supported by the host. The PDP 11-780 and IBM versions give the same freedom.

Info is fast catching on in the US, with over 260 customers. Licence fees vary from £4,220 for Honeywell Level 6 to £12,000 for IBM and PCMs running under VM/CMS.

An enhanced version of Pascal has just been released by Prime Computer for use on the general purpose Series 50 systems. It meets Ansi draft standards and is said to offer additional features.

```
RELATE datafile-name (relationship-no)
    BY item-name WITH
                                  APPEND
                                  FILL
                                  INIT
                                  ORDERED
                                  TABLE
                                  SUMMARY
```

Figure 1.



Our picture shows Dataplan sentences on a video terminal. These produce a report.

'Program in two minutes' is claimed for dictionary

THE secret behind Dataplan, the program generator for Data General kit about to be launched by the Hounslow firm Computerplan, is its special dictionary.

"It takes only two minutes to produce a program" claims Computerplan. The tool is aimed at Eclipse, Nova and MicroNova users. Using the dictionary, the information needed for processing and formatting data is automatically defined, enabling the non-specialised user to produce reports from the system.

The reports are created via English language sentences which generate programs in structured business Basic. Using the printer or VDU, files can be maintained and reports produced with a few statements as pictured above.

Computerplan claims the tool allows design and programming phases to be merged into one. The idea is that the systems analyst plans and defines the data structures in the Dataplan dictionary; online so that everyone involved gets the latest specification. He-she can then produce immediate results using the Dataplan language to create programs.

The suite consists of dictionary maintenance, dictionary listing and summary, sentence compiler and print interpreter. The dictionary allows ownership of fields and files to be defined with no restriction on the number of levels. A file may have any number of indexes defined.

Computerplan uses the system in-house and although it is not yet officially launched it is in use at clients' sites.

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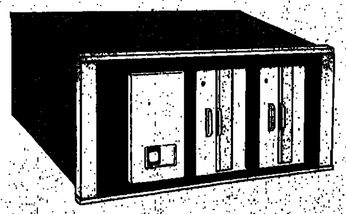

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OP SPOT

by Bernard Allen

A career path and training still major issues

ALMOST three years ago to the day with a feeling of great anticipation and no little uncertainty I took over a column called Op Spot – the operators' only corner in the computer trade Press.

And it is with an unusual mixture of relief and regret that I put my name to the Op Spot page for the last time.

Three years is quite a long time out of anyone's career, so I would like to take this opportunity to reflect on some of the subject matter we have looked at on this page.

Career progression was an area of much heated debate – a fact which reflects the difficulties operations staff face as they try to capitalise on their skills and experience.

Many correspondents said that their site provided no career path for the operations staff. They pointed out that it was relatively easy to get to the position of senior operator but that further progress was extremely difficult.

Professional

Some contended that operators should be encouraged to move into application programming, while others argued that their hard-won skills would be better employed in such fields as technical support, operations support, systems programming, TP network, training, and supervisory and managerial positions.

It is important to bear in mind that few correspondents viewed life in the busy and sometimes hectic operations department as "just a job". The vast majority stressed that took their work seriously and adopted a professional approach.

Closely related to career progression is the matter of operator training and many of you complained about the scant attention paid to this at the typical installation.

In my view operators should be sent on courses to supplement their practical, hands-on training. Such courses, it must be remembered, should be attended at the right stage of the operator's development.

Shift work

Shift work was discussed at some length over a number of weeks. Several of you said that it is detrimental to health and has a disruptive effect on the operator's home and social lives.

By contrast, several operators said that they actually enjoyed working days, evenings and nights and that the nine to five routine just wasn't for them.

All I can say is that I have worked a two-shift, eight-hour pattern, which was fine, and the 12-hour shift rota, which I found very tiring.

The shift allowance came in for considerable criticism as a means of compensating the operator for working irregular hours. The consensus was that the general level of shift allowance just wasn't high enough.

Some pointed out that the shift allowance acts as a barrier to career progression: the operators come to depend on it and are therefore reluctant to give it up in order to move on to days only position.

Allowance

An interesting suggestion was that the allowance should be phased out in the event of an operator moving out of the department. This, it was pointed out, would help the operator adjust to the drop in income.

As I see it, one of the biggest drawbacks of the shift allowance is that non-operations staff both inside and outside the industry tend to view it as a bit of a perk.

That view is reflected in the attitude of staff associations when bargaining on behalf of the operator. As a result the operators don't get the level of compensation they deserve.

Townsend

TOPS men doing well

REMEMBER Steve Ward and David Townsend, the former TOPS operations students whose progress we followed on this page some two years ago?

I'm pleased to be able to tell you that both are still members of the operations fraternity and doing very well by all accounts.

Steve is a shift leader of a two-man team operating a Univac 90/40 at Jermyn Industries at Sevenoaks, Kent, while David is currently an operator at the First National Bank of Chicago at London. The site has two IBM System 3s.

Ward

Taking the helm

PAUL FISHER (right) is taking over Op Spot from Bernard Allen. Before joining Computer Weekly he worked for magazine Systems International writing about micros and peripherals. He looks forward to churning out anything that's fit to print about the weird world of computer operators and promises to answer all correspondence individually.

How Univac tries to tailor courses to fit students

OPERATORS sometimes go on courses and come back complaining that the ground covered didn't really meet their needs.

Typically they will say that the course had parts which did not apply to their installation or that the level of material was either too basic or too technical.

But let's be fair to the manufacturer – it's not easy to tailor courses to meet the requirements of different installations. And remember that the ability to absorb information differs from one person to the next.

Univac tackles operator training in a number of different ways, making use of computer aided instruction packages, video tapes and program tests, as well as the more orthodox classroom and hands-on approaches.

Budgetting

Alan Stevens, education manager for customer and services support at Univac's Birmingham training centre, told me: "We do general courses such as introduction to DP, systems and operations management as well as those relating to a particular machine or series.

"The operations management course covers such topics as organising, budgetting and planning."

The theoretical, classroom type courses are held both at the centre and on user premises.

They are scheduled at the centre in accordance with current requirements and include operations staff from different installations. On-site courses tend to be reserved for the larger user and have the additional advantage of being tailored to his particular system.

Vital

Stevens went on: "Our 1100 Series operator course covers matters such as the executive, job control, and hardware and software. It seems to go down well with the people who attend."

It is vital that classroom courses are backed up by practical [illegible] on training and so, in the case of new users, Univac sends a consultant along to the site and draws upon the vast pool of operations expertise at its West [illegible] benchmark centre.

The operations staff at the centre travel all over Europe and the US, providing [illegible] support and operator training.

Particularly impressive are the computer aided instruction packages which the user may buy from Univac for about £340.

The OS/3 CAI package, for instance, runs on the machine and the operator the manner in which work goes through the various stages of processing.

What I like about the package is that it is interactive, and calls the operator to get accustomed to the machine as he learns about the operating system itself.

Combined

In order to run the package the operator has to perform [illegible] functions – load it on to the system, key in commands at the console and take output from the printers. Excellent, in my view, as it combines theory and practice.

Video tape courses are used to explain the likes of tape and disk mounting and the "do's and don'ts" of basic maintenance. Such courses are useful in that the operator may study them when there is a lull in the work.

Much, however, depends on the attitude of the operator and the manner in which the material is presented.

Thank you all . . .

LET me take this opportunity to thank all who have taken the trouble to comment on and criticise the subject matter of this page.

My thanks go particularly to Ron Linton, operations controller at Manchester Polytechnic; Ron Johnson, who is head of operations at Univac's West London training centre; and John O'Reilly, the former chief operator at London Computer Services in the City of London.

Writing this column twice a week-out has been both fun and an education for me.

COURSES AND CONFERENCES

AN AWARENESS of the possible implications of new technology has led the trade union movement to press for the introduction of technology agreements in companies planning to use microprocessors and visual display units in the office. The British Council of Productivity Associations has organised a conference to review, discuss and examine these implications, and aspects of TUC proposals and technology agreements. It will be held in London on September 24, and is designed for directors, trade union officials personnel and industrial relations specialists. For further information telephone: 01-405 1023.

A conference designed to take the mystique out of microprocessing will be held in London on September 25. Organised by EM Courses, in association with Women in Management, the conference aims to prepare office managers, senior secretaries and office staff for the impact of new office technology on the business world. There will be a demonstration of equipment such as facsimile machines, computerised systems, word processors and electronic typewriters during the day. For further information, telephone: 01-654 4659.

A two-day European Technology Update will be held in London on October 21-22. Organised by the Yankee Group, the conference will review the current local networking technologies and assess their capabilities and characteristics. It will also compare the various approaches to local communications. Further information from Al Dunn, Yankee Group, Regal House, Lower Road, Chorleywood, Rickmansworth, Herts. Tel: 09278 4717.

A conference dealing with electronic printer, paper and other computer supplies industries is to be held in London on October 2-3. It is organised by Datasquest of California in conjunction with EIS Marketing Research. Issues to be covered will include an overview of the European electronic printer industry, the European facsimile market and an analysis of the full cost of ownership across competing technologies. There will also be a panel of users discussing their experiences and requirements. For further information contact Anne Whitehurst, London Conference co-ordinator Datasquest, 19035 Pruneridge Avenue, Cupertino, CA 95014. Tel: (0101-408) 725 1200.

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Ops management is a demanding job

OPERATIONS managers have come in for a fair share of criticism in this column during the past three years, so I can't go without saying something to them.

In fairness, operations management is a demanding and often thankless task. It is difficult to do the job well and all too easy to let things slip to the detriment of installation and staff alike.

The manager finds himself in a difficult and sometimes compromising position. On the one hand he has to look after the interests of staff and site, and on the other he must ensure that users get the best possible service.

My advice to the operations manager is: Look after the interests of your staff and most will respond in a positive manner.

Send the operators on appropriate courses and you will keep them interested in the work as well as adding to their already considerable technical expertise.

Ask for their views. Imaginative operators often come up with ideas about the [illegible] running and planning of the [illegible]. The problem is that few people take [illegible] what they say.

Give your staff responsibility and [illegible] in the face of unfair criticism. If a user [illegible] about the service, don't blame the [illegible] unless you are sure they are at fault.

Treat the operators with respect. It [illegible] your job much easier and ensure a [illegible] ning and efficient installation.

Group needed to fight for your status and respect

THE odd thing about operations staff is that they don't tend to organise and so have no organisation capable of looking after their interests.

[illegible] and Around the Country [illegible] the other [illegible] group [illegible] highly [illegible] the founder [illegible] were all [illegible] held [illegible] [illegible] [illegible]

PEOPLE and EVENTS

"Clipper" sails into computer age

"CLIPPER", a contender in the Americas Cup international sailing event, will be making use of the latest computer technology.

A computer system that allows instant analysis of the day's racing and a system that "talks" to the navigator during the race, has been developed by Dick McCurdy. The talking computer results from the addition of a speech synthesiser to the on-board computer, allowing verbal information to be given to "Clipper" navigator Tom O'Brien.

The system uses two Data General computers, one on-board and one onshore.

McCurdy introduced small computers into the Americas Cup in 1974.

McCurdy

O'Brien

Development and refinement of the new system is still going on.

"Finding out how to separate the most useful data and deciding how to use it is our biggest challenge," commented McCurdy.

Information gathered on board includes boat speed, apparent wind angle (the actual wind angle and the effect of the boat's motion), apparent wind speed and rudder position.

The technical team working with McCurdy includes Tom Johnson, a Data General systems engineer from Long Island, Dave Pedrick, a yacht designer and Sheila McCurdy.

New consultancy

SHEILA FOX and Phil Shipperlee are the co-founders of Link Associates, an independent consultancy service with an emphasis on the City Institutions.

Shipperlee has been in the computer industry for 11 years, in both hardware and software. Fox has spent nine years in recruitment agencies, the last two years as recruitment consultant with Computer Agency.

Joe Hamani has been appointed product marketing manager, printing division, at Data Recording Equipment. He has been with DRE for three years.

Zeus-Hermes Recruitment has made two new appointments. Lorna Harvey joins as recruitment consultant in the South West Home Counties. She previously worked as advertising manager for Haymarket Publishing. Derek Pearson is recruitment consultant in Central London and the South East Home Counties. Pearson previously worked as systems and programming divisional manager for another recruitment consultancy.

John Girdley has been appointed manager, communications and software products, for Memorex International. He will be responsible for marketing and sales support of communications and software products for the 21 countries in the international group.

Magnetic media division opens

RHONE Poulenc Systems has established a Magnetic Media division at the company's premises in Dunstable.

The company has recently signed a marketing agreement with Dysan Corporation of the US, which will result in the emergence of a new range of magnetic media products on to the UK market.

Ian Sutherland, who has had 23 years' experience in the industry, is Magnetic Media's divisional manager. The division will market products for the mainframe mini- and microcomputer markets and the word processing and instrumentation markets.

Rhone Poulenc Systems is part of the French multinational Rhone Poulenc SA.

Head of department

DR TERRY LANG has become head of the computer centre at Wolverhampton Polytechnic.

He has had considerable experience in the computer field, both in industry and higher education.

He was principal scientific officer at the Culham Laboratories of the United Kingdom Atomic Energy Authority between 1970 and 1973.

In 1973 he became deputy director of the computer laboratory at Liverpool University, moving to Birmingham University in 1976, to take on his most recent post as systems manager at the computer centre.

Gregory McCormick

Compeda recruits

COMPEDA has recruited five [illegible] tional engineers to work on the [illegible] Design Management System (PDMS).

Alex Bowden joins the company [illegible] development engineer. He [illegible] previously in the London [illegible] department of Lummus. [illegible] Woodman and Andrew McCormick have been appointed PDMS [illegible] engineers. Woodman was previously with Marconi Space and Defence Systems and McCormick joins from Redpath Dorman Long. Stephen Gregory, from Faber Computer Operations, is now PDMS trainee [illegible] engineer.

David Boardman formerly with [illegible] Plastics, becomes a PDMS technician.

Janet Arthur has been appointed installation supervisor at Logica [illegible] was previously with Barclays Bank and Universal CMS.

James Birchfield has been promoted to director of investor relations [illegible] Harris Corporation. He was formerly manager of market research and planning for Harris Semiconductor.

Two managerial appointments have been made by Modcomp. Dennis [illegible] wards joins as manager, special systems, having previously worked as [illegible] consultant with Telecomputing of [illegible] ford. Brian Miller is UK manufacturing manager. He joined Modcomp in 1978, having previously worked [illegible] EMI Electronics.

Ian Elliot has joined CSL Computer Services as sales manager. He worked for several years in the business and communications division of 3M.

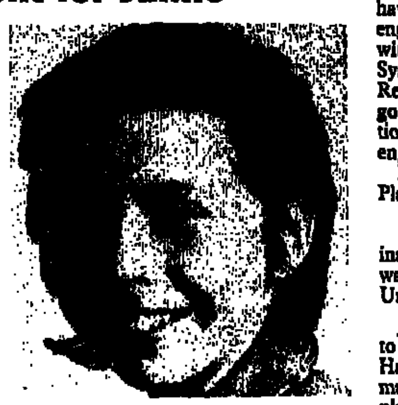
One more tournament for Jaime

JAIME GORMAN, the 13-year-old chess player sponsored by Computer Weekly, has one more tournament before the end of his school holiday.

He will take part in the Lewisham Open on September 12, playing people graded below 200. Jaime is graded 145.

This has been a busy summer for Jaime. He took part in the London Evening Standard tournament, the Lloyds Bank Junior tournament and the British Open at Brighton.

Jaime, who is self-taught, has been playing chess for four years. He practices his game for 1½ hours a night.


Jaime Gorman

Peter Hames has been appointed manager, employee relations at ITT Business Systems UK. He joined ITT in 1977, when he became employee relations manager for the consumer products division of the company.

Michael Ball has been elected senior vice-president, systems and communications, of the American Express Company. He was previously director of information systems for the data processing division of IBM.

DIARY

SEPTEMBER 17
Seminar. Data conversion. Ferranti. London World Trade Centre (061) 624 0515.

SEPTEMBER 23-26
Micad 80, CAD conference Micado. Paris.

SEPTEMBER 24
New technologies for information retrieval. BCS Information Retrieval Group. London.

OCTOBER 6-7
Seminar. Digital communications for satellites. Technology Transfer Society (TTS). London, (01) 242 4045.

OCTOBER 9-10
Seminar. Digital communications for satellites. Technology Transfer Society. Amsterdam. (01) 242 4045.

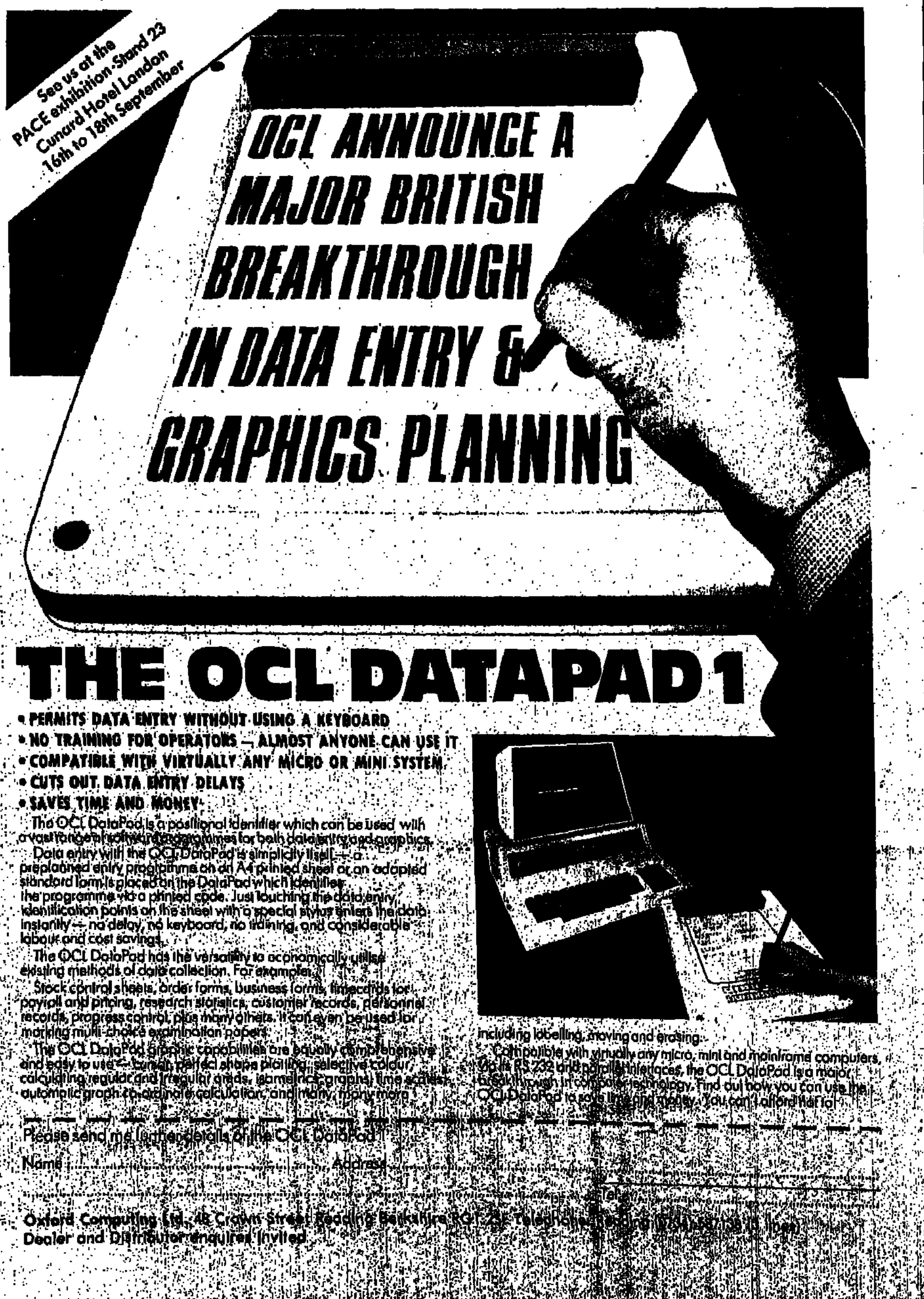
OCTOBER 13-14
Seminar. Digital communications for satellites. Technology Transfer Society. Munich. (01) 242 4045.
Seminar. International technical marketing. Technical Marketing Society of America/TTS, London. (01) 242 4045.

OCTOBER 16-17
Seminar. Digital communications for satellites. Technology Transfer Society. Berlin. (01) 242 4045.
Seminar. International technical marketing. Technical Marketing Society of America/TTS. [illegible] 242 4045.

OCTOBER 29-31
Exhibition. Viewdata [illegible] Professional and Business People. [illegible] Exhibitions. West Centre Hotel, London. Tel: (01) 837 3636.

COMPEC 80 will take place from November 4-6 at Olympia, London. The exhibition is organised by IPC Exhibitions [illegible] sponsored by Computer Weekly, Data Processing, Systems International and Practical Computing magazines. Practical Computing will also sponsor Microsystems [illegible] Compec 80 will display computers, peripherals and systems and include for the first time an IBM UK stand. Among IBM's exhibits will be the 3101 display terminal.

Further information about Compec 80 and Microsystems 81 can be obtained from [illegible] Hipwell. Tel. (01) 261 [illegible]



Emulator mini developed in UK

AN original British 16-bit minicomputer is being offered to OEM customers as a "universal emulator" where there is a need for a modern product offering software compatibility with an existing machine.

The mini is called the IS 2000, and comes from Interset Computer Systems of Midsomer Norton, near Bath; it has already been adopted by Monotype for use with its computer-based computer typesetting systems (CW, September 4).

It is built using the celebrated AMD 2901 four-bit bit-slice microprocessor, and in its initial incarnation has an original if conventional minicomputer instruction set. Thoroughly compact, the processor comes with 4K-words of memory, four levels of vectored interrupt and four level prioritised direct memory access on a single board. Main memory addressing goes up to 512K-words.

The mini was designed and is being manufactured at Chilcompton, and one emulation of an existing mini has already been done under a classified contract for a government research organisation.

Up to four of the processors, each with its own resident operating system, can run in parallel, sharing disc files.

Interset is also offering the IS 2000 as a business system, with a full set of standard financial and stock control programs. The programs are written in Video, the parameter-driven language for minicomputers developed from ICL's Filetab. There is also an assembler and a Basic compiler for the machine. Designed for interactive working with background batch, the IS 2000 business system can support up to 32 displays, or, with the maximum four processors, a total of 128.

A typical configuration with two displays, 32K-words of memory, 20 megabytes on disc and 180 chps printer, costs about £17,500.

Interset Computer Systems is controlled by a Dutch company, International Zet Centrum, which has a 60% stake. The company is currently doing annual business of about £1 million, and the three arms of its business are computer systems for typesetting, end-user business systems and OEM business with the minicomputer.

Tandem can stop dishonest cyclists

THERE was a time when dishonest Dutch burghers could pedal round their flat land from one town to another picking up various social security benefits. This won't be possible if a trial project, using Tandem equipment, is put into action.

At present three dual processor NonStop minicomputers are being installed, one of which will be dealing with child allowances within 18 months. Eventually it is planned that all 23 of the Dutch social security offices will be given NonStops. Storage capacities will range from 64 to 240 megabytes depending on local needs. These will be linked to a central two- or three-processor NonStop system so that claims made at local offices can be swiftly verified at a central site.

Bureau to offer Sharp APL service

AN APL bureau service using the popular I. P. Sharp software should be available on a UK-based system starting early next year. The host machine will be the Amdahl 470V/8 at the Massey Ferguson Eurocentre in Birmingham and the service will be sold by the Computer Resources Group. Users will be able to get onto the system simply by dialling a Computer Resources office in London, Coventry or Manchester. I. P. Sharp's own APL service runs on an Amdahl V/8 in Toronto.

But the Computer Resources service is unlikely to remain unique for very long in the UK. Fred Perkins, boss of I. P. Sharp in this country, said that his company was talking to at least one other very big computer operator here that wanted to run the I. P. Sharp software under licence and offer a bureau service.

Massey Ferguson in North America is already licensed to run the I. P. Sharp software on its own machines at Toronto and Des Moines, Iowa, and is one of the biggest in-house APL users in the world. The APL service run at the Eurocentre will be accessible from France, West Germany and Italy via Massey Ferguson's private network and Computer Resources plans to open offices around Europe to sell the service to outside users.

Computer Resources sales director, Tony Richardson, said that only a handful of people would be needed to market the service on the Continent.

Richardson pointed out that Computer Resources already had close links with Massey Ferguson, having been a supplier of systems and software support to the giant agricultural vehicle manufacturer for about eight years.

On the V/8 at the Birmingham Eurocentre the I. P. Sharp software will run under MVS, taking advantage of the advanced intercomputer, communications facilities offered by JES 3.

APL services are already available in the UK from several bureaux, including BOC Datasolve, Boeing and Atkins Online. But only I. P. Sharp itself offers an APL service based on Sharp software at the moment.

Lucas centre agreement to be ended

THE Computer Resources Group and Lucas Industries are to terminate the agreement they signed about five years ago under which Computer Resources sells services on the big IBM-based Lucas computer centre in the West Midlands. Kit there includes a 3033 and a 370/168.

According to Computer Resources sales director, Tony Richardson, his company was restricted to selling RJE services on the Lucas machines, a satisfactory arrangement in the mid-Seventies but not today when clients expected to have access to facilities like TSO, CICS, IMS and APL.

Computer Resources is no longer actively promoting services on the Lucas machines but will continue to take care of clients that use them until August 1 next year. According to Richardson there are now only two significant clients, one of whom plans to install a 4300 system in house.

CAD packages use Primes

IN an effort to expand sales beyond the first-time user market Prime is concluding a series of what it calls "system builder agreements". Alternative Business Systems ordered five Prime 150s at the beginning of the summer and Cambridge Interactive Systems is using Prime equipment as the basis of its computer aided design packages.

Prime is quick to point out that it is not seeking OEM contracts but contracts from systems builders.

Cambridge Interactive Systems is using 32-bit Prime 150 and 450 minicomputers in the Fortran-prepared Cablos and Medusa drafting systems. Chris Fell of CIS said, "We are not into the game of making black boxes. We supply a standard mini and don't even tweak the operating system."

A typical Medusa configuration costs nearly £100,000. This breaks down to £65,000 for the mini and mass storage, £20,000 for the software and £14,500 for a complete workstation.

Newcomer shows first product at micro show

OXFORD Computing came into existence about six weeks ago with six directors led by founder and managing director Chris Williams. Its first product is an A4 digitiser pad, which went on show last week at the Personal Computer World Show in Hammersmith.

Based on a Zilog Z80 processor, the device was not actually working on the stand, because its Eproms had not yet been programmed, but the main difference from established rivals is the automatic recognition device which reads an eight-bit code strip printed at the top of each form as it is inserted under the clip bar at the top of the pad. This enables the digitiser, called the DataPad 1, to be used economically for jobs that involve working quickly through a stack of forms, entering only two or three items from each one.

Graphics system

The pad can be used for graphics input as well as forms, has a resolution of 1mm and costs £495 retail. Two more digitiser models are planned before the end of the year, each with a built-in display and more intelligence. A £1,000 programmable handheld terminal with a battery life of 200 hours, a liquid crystal display and a Prestel compatible viewdata interface is to be launched at the Pace peripherals exhibition at the Cunard Hotel in London next week, followed by a microcomputer by the end of the year.

Research Machines demonstrated its £4,200 basic graphics system — based on a £300 graphics board, but needing an RM 380Z processor with 56K of RAM and twin eight-inch floppies to run — and announced the first commercially available implementation of the Gino-F and Gino-Graf software developed by the Computer Aided Design Centre in Cambridge. This has the advantage of being compatible with a well-known mainframe system, but is only available in Fortran. So Research Machines has also written its own advanced 3-D graphics system in machine code and expects to have the documentation complete in four to five months' time.

The basic graphics software has a set of function routines which are accessible from Fortran, Algol, Basic and Assembler, and Pascal is to be added in the next few weeks.

Research Machines has also firmed up details of the networking computer it plans to have available within six months. Based on a 4MHz Zilog Z80A processor, it is likely to cost £350 to £400 for the basic unit, which will be a little bigger than the present keyboard unit, and will drive an 80-character monitor or high resolution colour graphics screen and handle 32 or 64 terminals, although this is limited only by the number of address switches each would require, and drive a twisted pair multidrop line at 800Kbps. It will have IEEE 488 and RS 232C interfaces.

Tandy had 10 TRS-80s available for members of the public to use the self-teaching Basic and other programs, which could be loaded from a central floppy disc via the Network 1 controller, designed to interconnect up to 16 micros.

— DONALD KENNETT

COMPANY NEWS

Auditors qualify PO's accounts

THE Post Office has reported a decline in trading profits of 52% to £174.8 million for the year to March 31, but an exceptional gain of £122.2 million reduces the overall decline to 21% compared with 1978-79. The report is hardly satisfactory even apart from the slippage in profits, since the auditors have qualified it by saying that they have insufficient information to judge whether the accounts give a true and accurate picture of the corporation's position.

The exceptional items are property sales and a discount for early repayment of loans.

Things look particularly bad on the telecommunications side, where profits plunged by 62% to £129.1 million. The five-month dispute with computer staffs, coupled with inflation, are blamed for this – and there are new rumblings on the personnel front.

Impossible

The drop in profits was combined with an 8% volume increase in telecommunications business, but growth here depends more on the Post Office's ability to keep up with user demand than on growth potential.

A 22% increase in telecommunications charges is in the pipeline for November and the coming year looks an uncomfortable one for users from many aspects, because the separation of British Telecom from the postal business is unlikely to be achieved without considerable disruption.

The fact that the disruption in its computer operations has made it impossible for the Post Office to draw up accounts satisfactory to the auditors highlights the increasingly critical role played by the computer department in any company.

A State-owned undertaking like the Post Office will not go under, whatever mess its accounts may be in. For a commercial company, such a disruption in its computer department could easily herald the arrival of the receiver.

Warning

Sir William Barlow, retiring chairman, warns that decline in the communications service is inevitable if the government continues to bar the corporation from borrowing to fund a part of its investment in new plant.

COMMENT

Spreading DP risks

ONE of the most unsatisfactory aspects of the UK computer industry from the point of view of investors keen to back new technology is that, once ICL is fully represented in a share portfolio, it is difficult to find any other shares with which to build up a representative spread.

New proposals from the Stock Exchange for an Unlisted Securities Market which would quickly absorb the shares at present traded "over the counter" under Rule 163 (2) are therefore welcome.

Most small computer companies come to market under Rule 163 (2) these days and the proposed new rules would make it even easier, with companies required to offer as few as 10% of their equity.

They will also have to agree to conduct their business under requirements almost as stringent as those for companies with a full Stock Exchange listing. However the former proposal that such companies should be able to make a semi-automatic transition to a full listing has been dropped, and they will now need to issue a full prospectus.

Stiffening of the rules under which companies on the Unlisted Securities Market would be regulated should reduce the danger of a few cowboys giving the whole market a bad name – particularly in the computer business – where investor confidence is only beginning to recover from the Miles Roman crash.

The high rewards to be had from the computer industry carry an attendant high risk. Many more people will be prepared to take the risk if it can be spread over sufficient investments.

Redfield buy

DIGITAL Scientific of San Diego, California, the firm acquired by former Itel president Peter Redfield, is to buy another Californian firm, Computer Office Systems of San Marcos, which builds office computers configured around the Zilog Z80 microprocessor.

Tandy profit

NET profit for this year is reported by Tandy to have increased 35% from $83,229,000 the previous year to $112,235,000.

Little change for ADDS management

IF, as is almost certain, NCR's agreed tender offer for Applied Digital Data Systems goes through, the Dayton, Ohio-based mainframe manufacturer has indicated that it will remain an arms-length subsidiary like its other recent substantial acquisition, Comten (CW, September 4).

It is therefore expected that ADDS will become NCR-ADDS, and the plan is for it to continue under its present management. It now looks unlikely that a bid-battle will develop between Mitel and NCR.

Ironically, ADDS was the unsuccessful predator in one of the fiercest corporate bid battles of recent years when it battled it out with Racal for Milgo Corp. That one almost ended in a dead heat with each side getting acceptances from about 48% of the holders.

Racal finally winkled out a few remaining little old ladies and holiday makers and just managed to bring in acceptances over the 50% mark, whereupon ADDS sold all the shares it had acquired on the way to Racal, making a handsome profit in the process, some of which has been invested in the new microcomputer developments.

ADDS' figures highlight its problems. In 1979, its turnover was $80.8 million, but profits slumped 24% to $4.78 million. In the first half of this year, profits fell another 38%.

● Rejected suitor Mitel has won a £5 million try-out contract for small private telephone exchanges from the Post Office. The exchanges will be in the 20 to 120 line range and will be built at the company's Slough factory. The contract was won against an array of top telecom companies including GEC, Plessey, Pye, Siemens, GTE, STC and Thorn-Ericsson.

Ampex is well on the way again

HAVING rejected a takeover bid earlier this year from the big US holding company, The Signal Companies, Ampex has reported financial results for the first quarter, ended August 2, of its current fiscal year which include a turnover of more than $119 million, 14% up on the first quarter of 1979.

Net profits before extraordinary tax items increased from $4.5 million to $5.4 million over the 12 months period.

At the time of the Signal bid, Ampex was approaching the end of a highly successful fiscal year, ended May 3, in which it clocked up net profits of $34.7 million on a $469 million turnover. The two figures were up by roughly 18% and 27% respectively, compared with the previous year.

Fall

The bid from Signal Companies, first reported in February (CW, February 28), involved the exchange of one Ampex share for 79% of one Signal share.

At the time this valued Ampex as at $495 million, but by the end of April the price of Signal's shares had fallen below a level that had previously been agreed by the two companies as acceptable.

The deal was called off on April 23.

System Industries in bid to repay bank with new issue

WITH the main aim of repaying bank debts of $3½ million, minicomputer disc system manufacturer System Industries is hoping to raise $5 million this month from the issue of 350,000 ordinary shares on the "over the counter" market. Until now there has been no public market for the company's shares.

In addition to the new issue a group of existing System Industries shareholders will sell 350,000 of their shares in the same way and at the same time through the same underwriting group, bringing the total number of shares on offer to 700,000.

The total number of System Industries shares outstanding after the issue will be about 1½ million. This means that half of the Sunnyvale, California company's common stock will then be publicly traded.

Asked why only half the shares to be publicly offered were being sold by the company the president of System Industries, Ed Zschau, explained that his firm did not need to sell more than 350,000 shares. But the underwriting group appointed to make the public offering had advised that 700,000 shares would be needed to ensure its success, so several existing shareholders were persuaded to offer another 350,000.

The System Industries product line includes disc subsystems for Digital Equipment, Data General and IBM Series 1 minicomputers. They incorporate disc drives bought in from manufacturers like Control Data and Western Dynex of Phoenix and can be used with machines as powerful as the Digital Equipment PDP 11/70 and Vax 11/780.

The company's activities on this side of the Atlantic are controlled by System Industries (Europe) based at Woking, Surrey, and last year the US parent came near to being European owned when it was the subject of an unsuccessful takeover bid by CII Honeywell Bull of France. But the US firm decided to stay independent because it was enjoying rapid growth while remaining profitable.

Tandberg losses hurt Norsk

ENTERPRISING Norwegian minimaker Norsk Data has been hurt by the acquisition of the audio products and teaching systems arms of the dismembered Tandberg – but expects to make good a first-half loss in the rest of the year.

Norsk Data has reported a first-half loss of about £260,000. All of this came from Tandberg which lost over £500,000. For the full year, Norsk Data nevertheless looks for an overall profit of some £1.7 million.

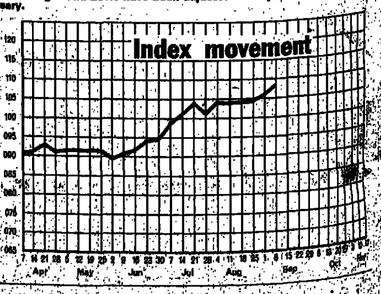
Orders in hand for the data division are said to be 35% up compared with the previous year. Production of Norsk Data's new Nord 500 computer has been delayed but is expected to start early next year.

CW SHARES TABLE

Index: 108.00 Change: +2.21

Fence	London Stock Exchange		Fence		$	New York Stock Exchange	
1980 High	Stock	Price	Chge		1980 High	Stock	Price
478	A Comp Tech (25p)	465	– 2		113¾	AM International	11¾
43	B Box Kent (25p)	39½			27⅝	Amdahl	27⅝
427	Barrow Hep (£1)	£284	+ £10		37⅝	Automatic Data Proc	36⅝
78	Chloride (25p)	68	+ 3		24⅝	Burroughs	24⅝
41	Comp Tech (25p)	34	+ 2		84	Business Science	84
100	Cossor (£1)	70			24⅛	Control Data	24⅛
70	Data Sol (25p)	70	+ 3			Digital Equipment	
540	Data Sol (25p)	540	+ 17		68	Diebold	68
168	Datel (25p)	168			37⅝	Honeywell	37⅝
148	Dowty (50p)	148				Hewlett-Packard	
444	GEC (25p)	444	+ 32		29⅛	Honeywell	29⅛
334	Hunnewell (61.80)	334			29⅛	IBM	29⅛
£20½	Int Sig (£1)	£20½	+ £¼		29⅛	Itel	29⅛
118	Kode Inter (25p)	£27½	+ £¼		29⅛	Memorex	29⅛
116	Kt. (25p)	102	+ 4		29⅛	Micom Sys	29⅛
78	Logica (10p)	78			29⅛	Nat Semi	29⅛
293	Micro Focus (25p)	293	+ 6		29⅛	National Semi	29⅛
£20½	Micrologic (£1)	£20½			29⅛	NCR	29⅛
370	Molineux (25p)	140			29⅛	Perkin-Elmer	29⅛
£111	MCR 4% 82/86	£70	+ £3		29⅛	Polaroid	29⅛
£104	Perkin-Elmer 4%	£35	+ £2		29⅛	Schlumberger	29⅛
210	Philips Lamps (Fl 10)	378	+ £2		29⅛	Telex	29⅛
267	Ransay (50p)	240			29⅛	Texas Instruments	29⅛
268	Redifon Elec (25p)	268	– 1		29⅛	Triad	29⅛
97	Redifusion (50p)	97			29⅛	Wang	29⅛
£10½	Rodwell (£1)	£10½	+ £ ¼		29⅛	Xerox	29⅛
£20½	Schlumberger (£1)	£37½	+ £¼				
£20½	Sinclair Rad (£0.50)	£20½	+ £¼				
£21	Thorn EMI (25p)	£16½	+ £¼				
£20½	Thorn-EMI (25p)	£16½	+ £¼				
£20½	Tmmc (£1)	£11½	+ £¼				

The table shows the closing prices in London and New York at the end of last week. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted for capital issues where necessary.



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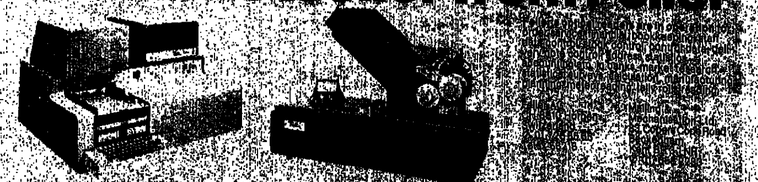

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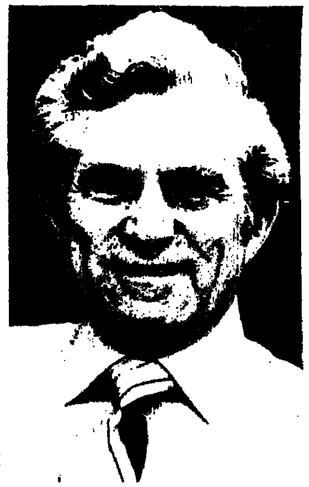
Since Dr Gene Amdahl announced late last month that he was severing all ties with the company he founded to form a new competitor for IBM, the air has been thick with questions: What would be his relationship with his old company; what exactly did he plan to do; what were the key new ideas that he wanted to pursue?

In this, the first full interview he has given since the announcement, he gives Computer Weekly's US correspondent, HESH WIENER, some of the answers, and also provides some new insight into Amdahl Corp's forthcoming competitor for IBM's H-series – codenamed Oslo.

Amdahl v. Amdahl for the IBM market



Gene Amdahl... "It could be tougher this time in some ways".

THE official announcement came from corporate headquarters in Sunnyvale, California. Amdahl the man was leaving to challenge Amdahl the corporation.

The duel will be fought on the frontiers of technology; the weapons are to be ingenuity and capital; the purpose is to build the most powerful and efficient business computers in the world.

A lot is on the line this time, particularly for Dr Eugene Amdahl, founder and namesake of Amdahl Corp who, not so many years ago, left IBM to found his first company and now intends to do it all again, only better.

Gene Amdahl's new company, like his first, will depend on advanced technology, designed by the scientist, to make its mark on computing. But times have changed, and the man who has already proved sceptics wrong once will have different problems to face this time.

"Yes," he says, "it could be tougher this time in some ways. Certainly the competition is advanced. And the opposition – IBM at least – is aware that it is possible for somebody to compete with them.

First test

"But this time we will start with known architecture, whereas last time there were all the rumours about the architecture of the future that would foreshorten the life of Amdahl Corp's product. This time I'm going to compete with something IBM has to live with for a while."

Amdahl Corp will have to face the IBM H-series; Amdahl the scientist will have to beat IBM, his former company and any other challengers on the scene. The Oslo machines, as Amdahl Corp's next computers are called internally, may be the first test of Gene Amdahl's ability to foresee the future according to IBM.

Design on the Oslo products was begun by Gene Amdahl some two-and-a-half years ago, before everything about IBM's options could be known. Further, the Oslo systems will use certain architectural innovations that will be part of the foundation of any newer systems that come from the distinguished computer designer.

Gene Amdahl's first move will be to develop an advanced technology that can outperform circuits made by US and Japanese computer manufacturers for the coming generation of large systems.

Right now, Gene Amdahl won't say exactly how much power his next machine will have, but he will not challenge estimates in the 20 million instructions per second range or higher; anything much smaller would be just another top-end computer by the time the new product is unveiled.

Gene Amdahl is aiming for a finished machine by late 1983 or 1984. But between now and then, he has a lot of work to do. For one thing, he must build a company.

This time we will start with known architecture, whereas last time there were all the rumours about the architecture of the future that would foreshorten the life of Amdahl Corp's product. This time I'm going to compete with something IBM has to live with.

Capital

Currently, Gene Amdahl is planning to move into new California facilities in September or October. His initial team will be quite small, fewer than a dozen people in all. Machinery to be used in the development of a new technology and, later, a new system, is already being ordered. And an effort to raise massive amounts of capital, perhaps $65 million or more, is under way. That plan, still not detailed, will probably involve Gene Amdahl setting up a special research company whose purpose is to develop the new systems.

The company will be constituted as a partnership that provides investors with tax benefits in return for their risking capital. The special type of company has been used twice before in the US to raise large sums of money, once for DeLorean, the automobile manufacturer, and once for Learjet, the maker of small jet aircraft. Both those financing plans were masterminded by Wall Street's Oppenheimer & Co, investment bankers, who are likely to help Gene Amdahl get his next venture off the ground. Some details on the financial strategy should become available in the next few weeks.

Gene Amdahl will continue to use silicon circuits, but his next generation of machines could come as a surprise to companies following the relatively well-marked paths of present semiconductor production.

"This new technology," predicts Amdahl, "will give a sterling lead over what I expect competitors to have at their disposal by the time I bring out the computer."

At the same time as he is betting his future, and that of his financial partners, on improved silicon circuits, Gene Amdahl has dismissed, at least for now, technologies that have been mentioned by other companies, notably IBM.

"I don't think the Josephson Junction (the cryogenic circuits IBM has boasted about) is likely to provide a basis for high-performance computer technology," says the scientist. "Until the middle of this year, when Fujitsu announced some gallium arsenide approaches that were faster than Josephson Junction – and at only liquid nitrogen temperatures – IBM was getting away with its Josephson Junction ideas in the sense that it sounded so attractive nobody could see what the pitfalls were.

"Making a fast computer is not principally getting fast switching devices. The reason, essentially, is that certain signals you generate inside a computer travel down conductors a little slower than the speed of light.

"At the end of the conductor, if the line is not terminated in its characteristic impedance (an electrical property), you get a reflection of the signal. If the circuits have had a chance to recover from their last activity, this reflection can cause them to switch again. So you'll have an unstable computer.

"This means you would have to terminate conductors in their characteristic impedance, which takes in the order of ten times as much power, or use a device which won't have recovered by the time that the noise bounces back on the conductor. This limits speed."

To overcome this problem, Amdahl says, you have to reduce the distances signals travel in a computer, which may imply that he will build his next machine in a spherical or cylindrical shape. Past scientific machines from Cray Computer are designed as cylinders for the same reason. In addition, more powerful computers may have to have several sections operating in parallel, each at a manageable speed.

Choices

Another improvement in computers that Gene Amdahl will make, which will be evident in the Oslo systems of Amdahl Corp, is a faster way to process micro-instructions.

In very powerful machines, the designer must make difficult choices between hardwired instructions and instructions produced by having, in a sense, a computer within a computer. Because IBM can alter its systems, some flexibility is required of machines that compete with IBM models. At the same time, if that flexibility is achieved at a cost in efficiency, it becomes harder for a small company to compete with IBM. But there may be an answer.

"Microcode memory, if made of the same technology as the rest of the system, can be slower. The time it takes to access microcode instructions is greater than that between clock points in a tightly-designed machine. Therefore, if you use microprogram control, you must settle for a longer clock cycle (than you might otherwise achieve), and that slows down the machine. Even though you could put more functions in, there is no reason to expect that you can buy back with microcode what you lose in speed. But then I had an idea that gets around the problem.

Interweave

"When I was working on Oslo I invented a different form of microcode control. It's a very subtle thing. In essence, at all times you can make a branch, or not make it, and still not make an additional memory access."

The next generation of large machines will include two or more processors, which can be put together in a variety of ways. Amdahl hints that he has chosen to interweave the two machines in one complex. When used in conjunction with operating systems like IBM MVS, a processor complex can work more efficiently than had previously been achieved if the designer's understanding of actual system usage is complete.

"The Oslo computers (from his former company) will be able to do multiprocessing at great economy," says Gene Amdahl. Further improvements in the efficiency of multiprocessors will be made in future designs, too.

One clear opportunity for Amdahl in his new venture is likely to result from IBM's traditional pattern in computer development. The industry leader generally produces new systems of higher power at a relatively steady rate. Thus the coming H-series of large machines will probably run two to three times as fast as the present high-end product, the model 3033. Amdahl Corp's Oslo series is likely to offer performance somewhat greater than IBM's offering, but not as great as, say, a pair of H machines. So Gene Amdahl's target for his new company, a computer perhaps twice as powerful as anything IBM will make, should be a unique offering.

One marketing question that could raise doubts about Amdahl Corp among investors is the overlap between the existing company's customer base and the likely prospects for new machines designed by Gene Amdahl. Not all IBM users are willing to leave the fold, regardless of any cost/performance advantages of a new machine. Those that will consider an IBM-compatible product will be playing off sales people from all the entrants in the race.

One consequence, still vague as the situation three years in the future cannot be predicted, is that Amdahl Corp could lose sales to Gene Amdahl while IBM suffers relatively few defections that might not have occurred anyway.

In the meantime, Amdahl Corp is hoping to sell more of its stock to the public (and to its largest investor, Japan's Fujitsu). Wall Street's reaction to the stock offering may provoke comments about the value of the man versus the company, as well as new analysis of the prospects for manufacturers of compatible machines.

Whatever the direction of events during the coming months, one thing remains clear: a man who has proved he could beat IBM's use of his old ideas should have a good chance against a smaller company, even if that smaller company has his name.

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MICRO NEWS

by Eileen Stainer

Sinclair launches the Super ZX80

CLIVE SINCLAIR launched his "Super" ZX80, last week, with the introduction of an 8K Basic ROM chip and a 16K RAM package. He also announced that the US company Image Producers would be supplying standard software packages for both versions to the UK and Europe.

"With 16K of RAM and the 8K Basic ROM," he said, "the ZX80 will rank well above equivalent memory-size versions of the Pet, Tandy and Apple systems." Sinclair uses his own Basic rather than the more commonly used Microsoft Basic, which he claims is not the best version.

Graphics

The 8K Basic ROM chip, which directly replaces the 4K ROM original, will enable the ZX80 to work in floating point arithmetic to a 9-digit accuracy. It will also do log and trig functions and their inverses. But unfortunately there is no upwards compatibility between the two slightly different Basics.

The ROM will also extend and improve the graphics facilities of the ZX80, and add 37 new functions for which Sinclair supplies an overlay template and a supplementary operating manual. Additional features will include graph plotting, execution of scientific functions, a "pause" function to permit animated displays, a set of string handling facilities, arrays and cassette load and save facilities.

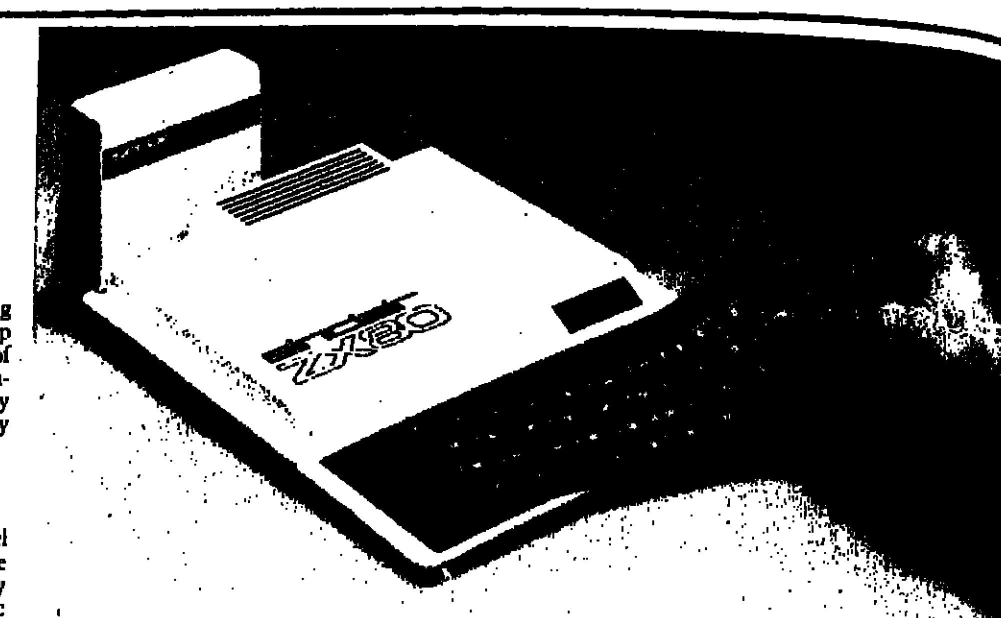
Replacing the current 3K-bytes of memory expansion boards, the 16K-byte RAM package can be attached to the rear of the ZX80 via an edge connector, and supplements the system's integral 1K-byte of RAM.

Both additions, the 8K ROM at £19.95, and the 16K RAM at £49.95 (inclusive of VAT) bring the price of a ZX80 system up from £100 to £170 plus the cost of a cassette, say around £200. Sinclair considers it still a better buy than an Acorn Atom or a Newbury Laboratories Newbrain.

Twice as fast

However, the Newbrain model MB, which costs £195, can operate from mains or battery, has battery backed RAM, 16K of dynamic RAM and is claimed to be twice as fast as the Pet. It uses a dual processor CPU; a Z80 to process, and a National Semiconductor NMOS microcontroller, the COP420, which controls the display, keyboard and peripheral drive interfaces. It also has eight I/O ports – the ZX80 has none.

Sinclair pointed out that the Newbrain MB is not around yet, but it is due to be launched this month. He also said that an I/O port has been designed for the ZX80 in the US, an RS232C interface, but that now is not the right time to introduce it on to the market.



A keyboard template is supplied with the "drop-in" 8K Basic ROM chip for ZX80.

Sinclair says 17,000 units have been sold since the launch in February and they are currently being manufactured at a rate of 300 per day, increasing to 500 a day by the end of the year. Exports to Sinclair's Boston office in the US are now at 40% of total production, but this is expected to reach over 70% in the next six months as other overseas markets are tackled.

"This puts us ahead of all the other personal computers combined in the UK today," said Sinclair. In the US no kits are sold – this is left to Compshop and its MicroAce, with Sinclair getting royalties. The 8K Basic ROM will be made available to Compshop.

Nigel Searle, head of the Boston office, reckons that Sinclair Research will be selling more personal computers in the US than any other company there by the end of next year. At the moment the US office is undergoing an advertising campaign for the ZX80 in education.

Software

Like the US office, Sinclair Research in the UK has decided to take on Image Producers to supply software for both the 4K and 8K ROM versions. The company will be issuing a catalogue in the autumn, which will categorise the products into two sections.

The first section is to contain 10 business and scientific programs, initially for the 4K version, and the second section will contain entertainment programs. Image Producers is currently developing a "Computer learning lab" software package, aimed to introduce novices to computing at an elementary level.

No further memory expansion is planned by Sinclair at the moment, "but we will do it if there is the demand," he said. He also said the same about a plug-in external keyboard.

The ZX80s are still manufactured on a subcontract basis by an electronics company in Cambridge. Sinclair claims a less-than 1% failure rate in the field, and a four-week delivery time (even though this was up to nine weeks at one point).

A surprising announcement by Sinclair was that he is planning to enter the field of "Telesoftware" with the ZX80 sometime next year. This means that programs using the Sinclair version of Basic could be transmitted via the Prestel system.

He has already had talks with one television company about broadcasting software, and considers that his Basic could become the standard rather than the most widely used Microsoft Basic. However, the revenue would come from advertising transmitted with the software.

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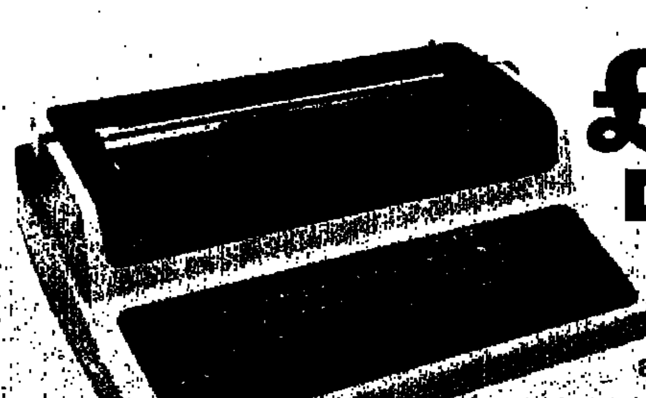

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Games boom is unlikely

THE expected boom in sales of electronics games this Christmas is not likely to happen, say securities analysts in Boston. Suppliers and analysts are predicting slower retail sales this year, with Christmas only slightly better than the 1979 figure of $375 million.

Reasons given for the drop in sales are the onset of market saturation and the overall economic slowdown. According to one analyst, market saturation will also cause a shakeout of small suppliers.

Retail sales are thought to be down by about 10% this year, while manufacturers' shipments are up by 20%. This will cause the larger suppliers to attract most of the sales and the smaller suppliers to lower their prices.

Reciprocal agreement

IN a cross-licensing agreement Synertek, a wholly-owned subsidiary of Honeywell, is to second-source the S68045 controller chip from AMI, which is to second-source Synertek's SY6551 UART. Samples are expected from both companies during the first quarter of 1981.

The S68045 is a plug-compatible version of the Motorola/Hitachi 6845 and is used mostly in high-volume low-cost terminals. The SY6551 asynchronous communication interface adapter features an on-chip baud rate generator and is used to provide interfacing between 6500/6800 family microprocessor chips and serial communication data sets and modems.

Electronics centre

A MICROELECTRONICS centre offering computer-aided design and integrated circuit engineering services is to be erected by United Technologies in the US next to the new Mostek plant which is currently under construction in Colorado Springs.

Gordon Hoffman, ex-manager of business and technology development with UTC-owned Mostek, is to become general manager of the centre. The services will be available to all UTC divisions when the centre is completed next year.

AMZ8000 support

DETAILED design support on the AMZ8000 16-bit microprocessor family can be obtained from Ganymede Consultancy and System Engineering, a division of SIA based in London, which has been appointed the recommended customer consultant by Advanced Micro Devices.

Zilog seminars

TWO seminars aimed at updating engineers and managers on the Z8000 family and related products are being organised by Zilog in October in Manchester and London.

Comms and personals will dominate Wescon

THIS year's Wescon, to be held at the Anaheim Convention Centre in Southern California from September 16-18, carries the theme Electronics, the Magic Kingdom. With microprocessor applications one of the major topics at the conference, this magical appearance is not surprising.

The three-day tribute to new techniques, products and systems in high technology will give a lot of attention to communications and personal computers.

About 50,000 industry professionals are expected to attend the convention and exhibition. Over 47,000 attended last year in San Francisco.

Over 600 companies are exhibiting from 1,200 stands while, in the same building, the scientific professional programme will offer 35 sessions with nearly 150 presentations. The Wescon marketing conference will preview the exhibition and conference on September 15.

Sessions, at a rate of three a day throughout the conference, will be divided into the categories of telecommunications, satellite systems, testing technology, memories, LSI and the microprocessor.

Telecommunications is to take up a block of sessions ranging from robust satellite communications, and advances in tele-communications semiconductor technology, to advance in telephone switching, transmission and customer equipment, and initiatives in satellite systems and services.

The microprocessor will appear in a variety of sessions, including home and personal computers, analogue interface to microcomputers, the microcomputer's pervasiveness on instrumentation and peripheral concepts.

Titles like Home Computer Design with Newer 8-bit Design Elements, and What is Happening in the Personal Computer Market will be bound to attract a great deal of discussion during the home and personal computer session.

Other sessions will discuss applications of bubble memories in harsh environments and memory concepts for the 80s.

Presentations will include electronic packaging and interconnections, semi-custom LSI gate arrays, computer-aided design, optical fibre transmission systems, multiplexed liquid crystal displays, power cells and aircraft collision avoidance.

Marketing conference

Wescon's marketing session, which will preview the exhibition, will be examining foreign influences, defence spending, new product concepts and purchasing perspectives. The first event will be a discussion on the influences of Japanese electronics on the US marketplace.

Other sessions will present such topics as an analysis of the electronics industry and its short-term prospects, a five-year defence market outlook with emphasis on electronics and Challenges for the Future.

Dr Simon Ramo, a founder of TRW, will give the Wescon keynote luncheon speech entitled Manufacturers of Chips and Systems – Who will Survive the Collision Course.

Exhibition

Exhibits will be grouped in four categories: instruments/instrumentation and control systems, production, packaging and test equipment; components; microelectronics and fibre optics; mini and microcomputers and peripherals.

Throughout the three days, several other events are sure to attract the crowds. At the Wescon film theatre, scientific and engineering films covering topics from the microprocessor to outer space will be shown continuously.

Scheduled as the special exhibit is a display of 24 personal computers which can be used in engineering and business management environments.

Life members of the IEEE, which is sponsoring the event, will present a special program on the electric vehicle, concentrating on the energy conservation concept. Several models of electric cars are expected to be on display.

Purchasing seminars

Aspects of purchasing in the electronics market will be discussed at the purchasing seminars which are to run concurrently with the exhibition. An initial presentation will be given on the subject: How can distribution organisations and representative organisations best serve the purchasing community?

Topics to be covered include the role a distributor plays in the industry; the advantages and disadvantages of buying through a dealer network, a distributor or the manufacturer; when to buy using these methods; and how to utilise sales and service personnel to the best advantage.

● Officials of the China Electronics Import and Export Corporation will be visiting Wescon in Anaheim next week. Li Zhengang, president of the CEIEC or trading arm of China's technology agency, will be giving a presentation about the Republic's electronics industry.

A programmable calculator from Texas Instruments, the TI 58/58C, can now be used to analyse water in swimming pools. The company in co-operation with water scientists has developed a pool water analysis module for the calculator which will compute the quantities of various chemicals in the water. By using the module a correct balance of chemicals can be maintained.

Intellec standalone development systems

INTEL has introduced a new family of 16-bit Intellec development systems which will support an iAPX-88/86-resident assembler and resident PL/M, Pascal, and Fortran languages. Intellec Series III is tailored for 8- and 16-bit CPU applications.

Available in the US in September for $16,500, the system is standalone with two host processors, an 8085 and an iAPX-86/10, a CRT monitor with detached keyboard and an integral floppy disc drive.

An upgrade package called Model 556, which will convert any existing Intel development system to a Series III will also be available then for $7,500. However, the Series III will be compatible with earlier systems, and offer multi-user support.

The two host CPUs will provide a dual execution environment to allow users to run 8- or 16-bit applications; and translators resident in the 8085 or iAPX-86 execution environments, respectively.

The company has also introduced a multi-user distributed program development system and a Pascal compiler for its 8- and 16-bit family of microprocessors. The first, the Model 290 disc file sharing system, will be available in the US in December for $25,105. The compiler will be available in the US in December for $4,000.

Among its multimodule boards, Intel has begun marketing its iSBX 331 fixed/floating point Maths board, which will be available in the US for $450. The module operator at 4 MHz with an on-board crystal clock speeding up arithmetic by over 20 times, claims the company.

CDC stores

TWO computer stores have been opened by Control Data in the US to market the range of personal and business computers from Ohio Scientific. If the project is successful, another six stores might be opened by the end of the year.

The stores are to be operated as part of CDC's education business, which includes learning centres and institutes. They will also market some of Ohio's own products such as floppy discs and other peripherals.

Ohio claimed the world's first true home computer when it launched its C8P DF at the Chicago Consumer Electronics Show last summer. The claim was based on the number of add-ons and interfaces provided for entertainment and external control for a cost of $2,600.

The C8P DF system is based on the Ohio Challenger 8P, and has dual eight-inch floppy disc drives, resident Basic and a TV interface for 16 colours and graphics. Features include a real time clock for use in monitoring and controlling home devices while the system is in use as a personal computer, an AC interface for remote control of appliances plugged into the mains and a universal telephone interface to dial numbers, answer calls and send messages.

THE Black Box II microcomputer system from London-based computer company Rair is now available at a 20% price reduction. A system configured with 32K of RAM and standard double density, double-sided disc drives costs £2,250, reduced from £2,800.

Memory has also been reduced in price, from £250 to £150 for 16K-byte of RAM. Two I/O ports will now cost £150 as opposed to £300. OEM discounts have been increased to 15% for one order and 45% for an order of over 100 systems.

Incorporating dual mini-floppy disc drives with optional Winchester hard disc drives, the Black Box II is based on the Intel 8085A and has multiple series interfaces for the attachment of terminals and peripherals. It is supported by the CP/M operating system plus Basic, Fortran, Cobol and Pascal compilers.

Second-source Motorolas

SECOND-SOURCED Motorola HMOS 8-bit microprocessors from Hitachi, the HD6801, HD6805 and HD6809, are now available in sample quantities in the UK from Dialogue Marketing in Bourne End, Bucks. Volume production is scheduled for this autumn.

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DONALD KENNET OBSERVES . . .

. . . THE LAST RITES OF AN OLD FAVOURITE

Farewell, my lovely KDF9

Last month saw the demise of a pair of English Electric KDF9s at the National Physical Laboratory in Teddington, West London (CW, September 4), one of which had been installed for over 15 years.

The occasion was marked by a farewell gathering at which former users, operators, systems programmers and engineers were invited to join those still at NPL in paying their last respects.

Tom Vickers, a retired senior technical member of the NPL computing team who is still active in the British Computer Society, reviewed the machines' lives and Donald Kennett went along to see the last moments of the machines he once helped to maintain.

Computer manager Dickie Bird and chief operator Joyce Brick lay a "wreath" on the console Flexowriter.

IT seemed that the 15-year-old machine was refusing to die, because as the power was switched off for the last time a bleeping was heard that meant the machine wanted an input from the paper tape reader. A brief discussion followed among the people in the machine room as to whether it was possible for the machine to bleep with the power off, before veteran operator Steve Wilson confessed that he was playing a tape recording.

Then the souvenir hunting began as those present – enthusiasts all – responded to the suggestion made in the farewell speech by Tom Vickers, a retired senior technical member of the NPL computing team who is still active in the British Computer Society, that bits of the machines should be kept and spread about rather than just having the hammer put through them as regulations required.

Small stores were favourite items. These are core planes, which were made by Plessey, typically a 16 by 16 array of cores threaded with fine wires, set into a perspex-sided box about the size of War and Peace and plugged into two adjacent slots in the racks of cards.

Sophistication

The small stores are specialised parts of KDF9 architecture and apart from being regular in form and relatively pretty to look at, for many they epitomise the sophistication of the machine. Programmers who wrote in the User-code assembly language became familiar with their operation because they are mentioned either in instructions or else in error messages.

For example, the message LOV did not indicate the machine's affection for its user, but the fact that a Lock-Out Violation had occurred – perhaps an input to an area of main store reserved for a different peripheral – and this was registered by the Lock-Out Store.

Collectors

Another small store called the Q-Store was used for a variety of purposes including holding parameters for jump instructions or peripheral transfers and temporary storage of data during manipulation.

So the collectors in the machine room last month knew what to expect from the stores, even if they did not know what they looked like or where to find them.

Others were happy to have a printed circuit board and here too the KDF9 had a special offering to make, for no other computer has made such extensive use of the pulse transformer in its logic. Many have suggested that later designs would have followed suit but for the subsequent miniaturisation of the transistor through the use of planar processes.

Specialised

The KDF9 was designed as a scientific machine, capable of high-speed operation on complex data. Speed was achieved by the incorporation of a number of specialised devices, such as a double length 96-bit hardware multiply and divide unit, done by one of several independent processors which worked on their own parts of the machine's instructions and data in parallel.

There were two main central processors, as well as an arithmetic processor, an input/output controller and a disc/file controller. Each had a microprogrammed sequence unit whose decimal read-only memory took the form of a diode matrix, so that it was possible, if desired, to change the way machine instructions operated or to add new instructions using unallocated codes. In fact, quite a few new input/output instructions were added to control the links to NPL's pioneering local packet switching network by Derek Grimsull, who has led the maintenance team for many years.

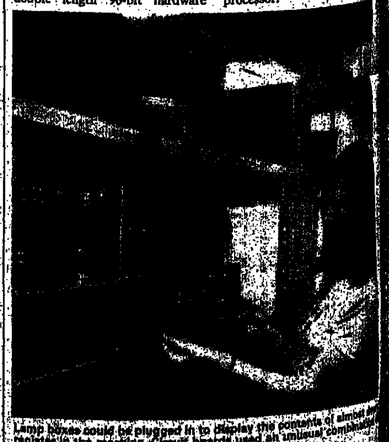
Pipelining

A form of pipelining was implemented in the machine in which two instruction word buffers were filled ahead of immediate requirements, so that decoding could begin while a previous instruction was still being executed. And a special instruction enabled looping up to 13 instructions held in these buffers to be executed repeatedly without any main store fetches.

Nesting stores or hardware stacks were used to hold data for complex arithmetic or logical operations and to hold successive memory addresses for nested loops. The arithmetic unit enabled radix conversions to be carried out to and from binary, and from and to any given radix; it also gave rise to instructions with delightful names such as Jump On Empty Nest.

The KDF9 was one of a series of machines developed by English Electric at Kidsgrove in Staffordshire, hence the acronym from Kidsgrove Data Files. The series was developed under the same philosophy of "spare no expense, nothing but the best will do" as governed the development of its aeroplanes, such as the TSR2, and got English Electric into financial difficulty.

Many models in the series never reached the market and plans for the KDF9 that were never implemented included a scheme to close-couple up to four machines and have them share an additional greatly enlarged core, store controlled by a further sophisticated processor.



Lamp boxes could be plugged in to display the contents of almost any register in the machine. Circuit boards used an unusual combination of transistors and pulse transformers.

Stripped of its covers and loaded with discarded plates and glasses, a paper tape reader meets an ignominious end.

Legendary label....

ONE of the anecdotes told over the buffet supper concerned the labelling of the engineers' panel. The KDF9 used two pulse trains for timing, called P1 and P2. During fault finding, the processor could be taken through instructions one microcode step at a time by single-shotting these pulse trains and one of the relevant switches on early versions of the engineers' panel was labelled P1S8. English Electric's diplomacy and attention to detail resulted in the later versions bearing the legend S8P1.

Pioneer delivers the funeral oration over 'a fine machine'

"BY the time NPL's pioneering Ace computer was working properly," Tom Vickers told his audience, "Other machines had become commercially available that were better – they had magnetic core store instead of mercury delay lines for example – so NPL was reluctant to repeat the experience by also designing Ace's successor from scratch.

"Among Ace's users, the young Dr Paul Dean (now the director of NPL) had been using a great deal of machine time and he said he would like a machine that was about a hundred times faster. That was enough for NPL to be able to get one.

Performance

"It was fairly straightforward deciding which machine to buy: Ferranti had only just announced the Orion, the Atlas was far beyond the money we could pay, the Elliott 503 was probably inadequate for our needs and IBM machines were expensive. That left the KDF9.

"To give an idea of performance, Deuce had just had its immediately accessible storage doubled to eight instead of four words and the KDF9 gave access to up to 32K-words in microseconds. It was a popular machine, there were many orders and we got in early with number nine.

"There was no stinting on core – we took the maximum, although 4K and 8K were also possible configurations.

"We got approval for an expenditure of £350,000 straight away. After five years an accountant got in touch with us from an administrative office to say that he had an item of £348,000 in the books with no explanation. So we prepared a brief specification for him.

Environment

"I think others made the mistake of ordering too little store, for example Salford University. And the Admiralty Research Laboratory had 8K, two paper tape readers, two paper tape punches, but no line printer.

"The environment had not been given a great deal of thought in the early days, but the KDF9 demanded certain temperature and humidity conditions, so we had to look for a suitable building to house it.

"We looked at wind tunnels and various laboratories and finally settled on Glazebrook Hall as a temporary home, because a new building was coming. But it was designed in a way that did not enable it to hold computers, so the KDF9 never went in there.

"Then the KDF9 Committee was started, with computer manager Dickie Bird as chairman. I think it met from time to time and discussed who else had got one now before fixing the date of the next meeting.

Improvements

"The Sixties saw online working begin to develop, but the designing of the KDF9 had predated that, so it had to be bodged. The choices of operating system included Egdon and this was used for a time.

"Then Eldon was chosen, which was written at Leeds University by David Holdsworth who is here tonight, and our network services manager Tony Hillman played an important role in implementing it and bringing about significant improvements to the service.

"When the disc was ordered we had to ask to pay for it at so much a month after delivery. Dr Goodwin, then the head of the Central Computer Unit, was persuaded to look at the disc at the factory and I had to advise him. In those days it took about four hours to Crewe on the train and we agreed to set out at eight o'clock in the morning.

"I missed the connection at Richmond by about 30 seconds, went on to Euston and missed the connection by about 10 seconds. Anyway, we looked at the disc. Two weeks later we were told that the disc we had seen was not the right one, it was for a KDF6.

"The KDF9 was a fine machine and it is a pity more of its best features are not available on newer machines.

History

"Very little material is available on the history of computing, so it would be a great shame if these machines just had the hammer put through them as the regulations require. Please check that the Science Museum has as much as it wants of the hardware.

"And the documentation too should be preserved. There was a proposal that the BCS library should open an archive section: perhaps a part of that could become 'the NPL collection'. The name of NPL should be remembered for pioneering in computing and many people are not even aware there are computers at NPL. Perhaps a slot could be created for further material to be added to in the future.

"Finally, it should be said that computing with the KDF9 was fun."

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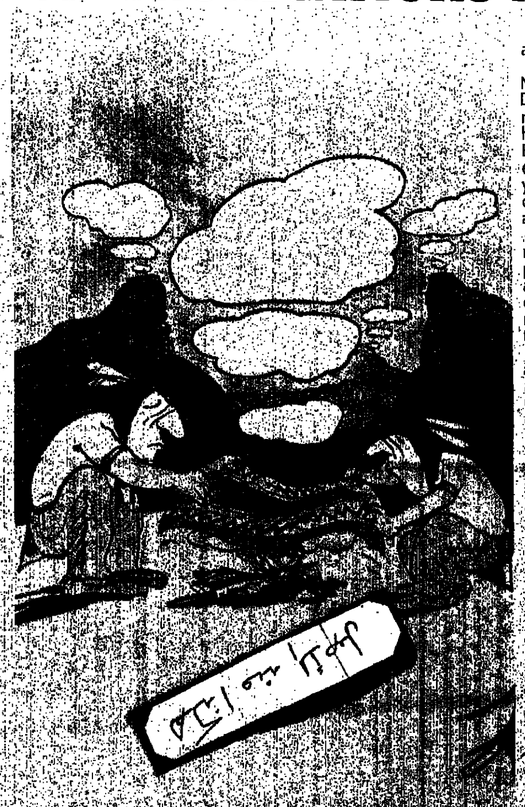

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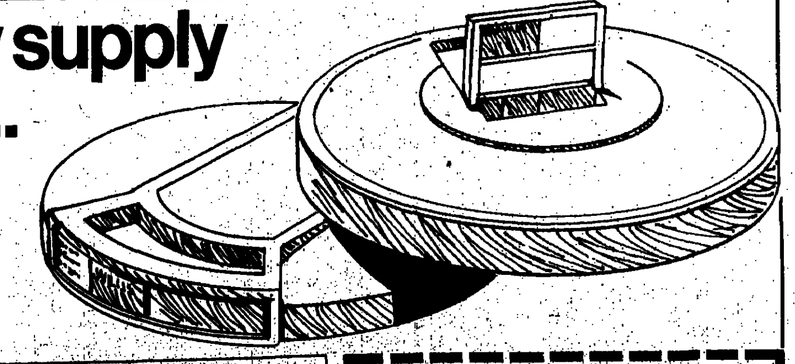

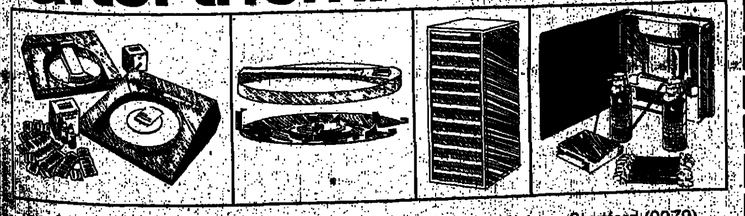

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CHRIS YOUETT EXAMINES ISSUES RAISED BY BBC HORIZON PROGRAMME 'GOODBYE GUTENBERG'

Winners and losers in office of the future

The information revolution which will take the workplace to an electronic paperless office is upon us. Many will be fearful of it, some will welcome it, some will not care.

Yet it could have as dramatic an effect on the world as did the invention of moveable type 500 years ago.

Chris Youett examines the issues raised by a recent BBC programme and tries to identify the winners and the losers in the quiet revolution.

ALTHOUGH we tend to judge the advent of the electronic office in terms of personal interest, is it possible to form an objective judgment of its likely impact on Society at large?

According to BBC 2's Horizon programme "Goodbye Gutenberg", this is impossible.

Presenter Anthony Smith suggested the effects would be so far reaching that they could only be compared to the cultural changes that Europe underwent following the invention of moveable type 500 years ago.

Awareness

He pointed out that the invention of print ended the manuscript industry almost at a stroke, thus ending the power of monasteries for ever.

It also revolutionised book keeping and led to the founding of political parties and the modern legal system.

Culturally, print created a greater awareness of identity, the bureaucracy, new forms of censorship, new thinking on great religious questions and social divisons.

The electronic office also presents an opportunity for a new moral order.

History has shown that no society can survive without some measure of privacy, yet the electronic office does provide the tools for a very unprivate society.

This is not to suggest that we may be facing the horrors of 1984: George Orwell's famous book was about the cult of personality in Stalin's Soviet Union and the way Lord Reith ran the BBC.

Smith is to be congratulated for avoiding confusing secrecy with privacy.

Yet because the electronic office could provide an unprivate world, it could well be the means for bringing the Warsaw Pact countries from the 16th century into the 20th century. Despite being regularly flattered by the Western Press as true Communist regimes, the Workers' Paradise is more akin to Tudor state capitalism.

Communicate

Certainly the office of the future will free us from the need to communicate directly. This was illustrated by a visit to the Los Angeles Times where the past three years' editions are kept on disc as well as the current edition being composed.

All the copy is keyed on to disc and can be manipulated by the composers until they are satisfied as to layout, grammar, spelling and length.

The stories are printed photographically, but still have to be pasted up on to pages in the positions marked on layout sheets. Printing plates are then made and the paper printed.

The end result is still the same, remarked Angelo Musanti who was in charge of the conversion programme, but it would be possible in the future to send the paper direct to readers' homes electronically.

In a sense this is already here with the various forms of teletext such as British Telecom's Prestel, the BBC's Ceefax, and ITV's Oracle.

This has created a huge new industry which costs the information providers a penny a day to rent a page on Prestel, but the price of receivers and the cost of using telephone lines must come down dramatically, if teletext is to be a viable alternative to print.

Expensive

Traditional forms of communications are rapidly becoming too expensive and too slow for cost effective use.

This has changed our attitudes towards technology. If we look at the professions, probably the most conservative section of the workforce, we find that many offices are leading the way in the rush to get on the bandwagon.

In banking, if it were not for some form of automation, the West's financial structure would have collapsed years ago. Today 95% of UK cheques are sorted by computer.

There are just not the people to do jobs like this manually any more and, if the banks had not introduced data processing, we would have to pay most of our bills in cash with the only cheques being issued for major items such as house purchase or foreign holidays.

However, it is the Japanese who will most feel the winds of change.

Japan is a male-oriented society. Women are only allowed to do menial tasks such as making the tea, sweeping the floor and filing.

This Smith attributed to the lack of typewriters.

Shock

Many "feminists" may reel with shock at this suggestion. However, Smith's statement is quite logical: until these primitive word processing machines came along, few women were able to get jobs, for all secretaries were . . . . men.

At present, most communications in Japan are by handwriting or by word of mouth. Now that computerisation has caught up with the complexities of the written word there, it is likely that direct voice input will be a common feature in Japanese offices by the end of the century.

Against this, it must be remembered that the average Japanese office has 50% more white collar staff than its European equivalent.

Apart from questions of cutting labour costs, there are two reasons why Japan is intent on leading the information revolution: its heavy engineering base consumes an excess of imported raw materials and oil, and the number of children who have had a Western style high school education is increasing.

Losers

After the dust has settled, who will be the losers in this battle?

This is something the programme never seemed to ask, apart from suggesting that Japanese society could be destroyed in the process.

I do not think that, in the long term, it will be women's jobs that will suffer, as Western men will probably always be too proud to key in directly, and will therefore require a secretary.

The programme was quite clear on one point: the benefits will only go to the educated and those who know.

Despite what the present government says, a good education still depends on privilege, position and money. The working class cannot just give up a few fags and pints of beer to send their children to a public school.

Already in the South East, it is considered socially unacceptable to get one's hands dirty for a living, and many teachers seem to think that industry is fit only for people who fail their GCE "O" Levels.

Yet who will make this technology? Certainly not the growing Middle Classes as they have mostly been educated to work in an office and wouldn't know which end of a soldering iron to pick up.

The losers will be semi-skilled and manual workers: they are the least educated members of society and the skilled can always get some kind of work.

And it is in this area that the labour movement is the weakest.

Despite the image created by the popular Press of trades union barons, the movement is divided against itself at the best of times.

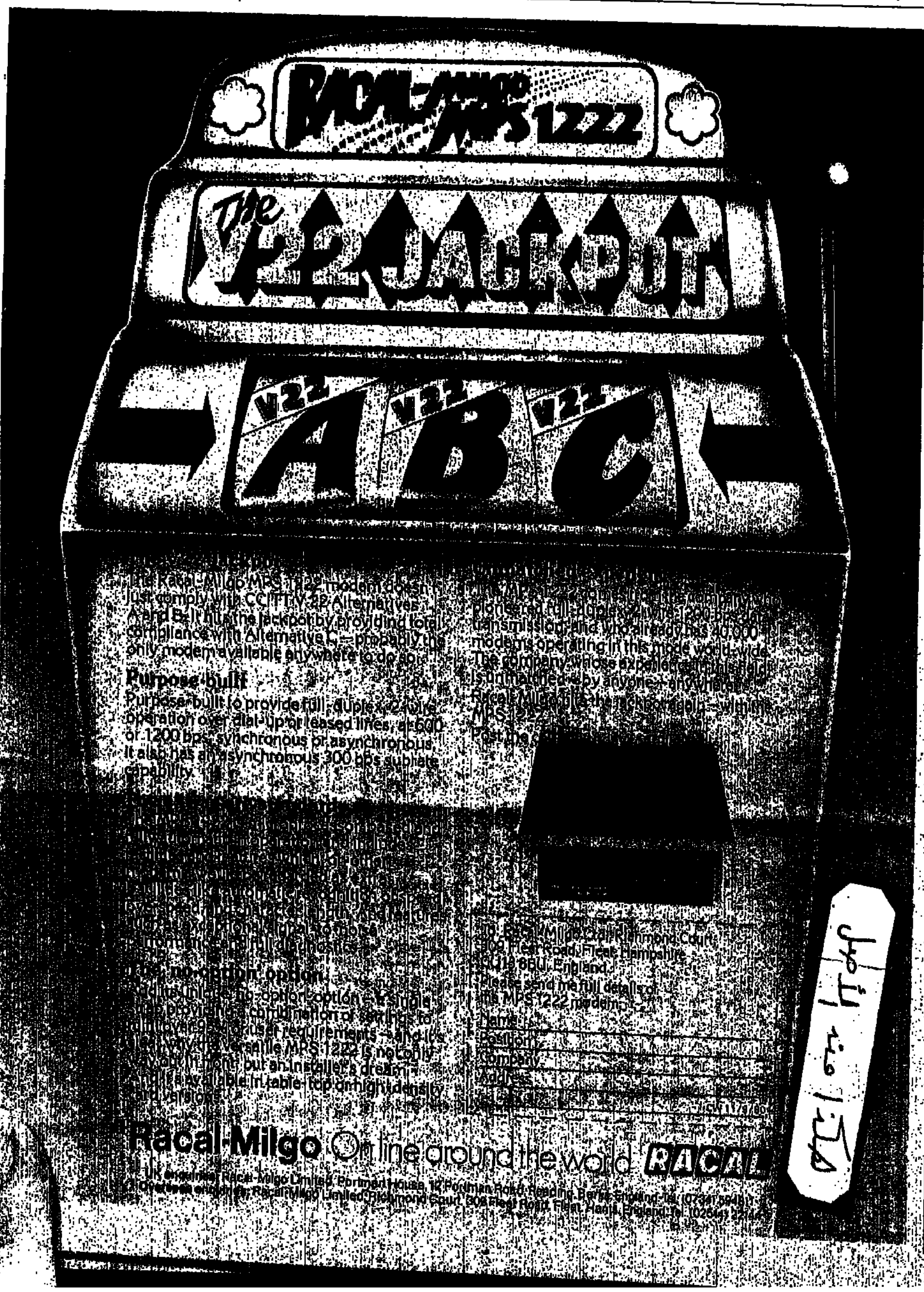
As NUR general secretary Sid Weighell bravely pointed out at the TUC conference last week, there are too many unions fighting each other for members when they should be fighting for better working conditions and pay from the employers.

Dictatorship

Unless the labour movement can reorganise itself on Continental lines with only one union per industry, then those at the bottom of the heap will stay there. This will breed resentment and could lead in a regime that nobody of any serious political party wants: a dictatorship.

The ultimate irony of the weakness of the labour movement today is that the super-efficient West German unions were reorganised after the war by the then assistant general secretary of the TUC, Vic Feather.

THE QUIET REVOLUTION



System to find blood donors

THE North-East Metropolitan Blood Transfusion Centre administers the collection of something like 625 gallons of blood every week. There are 90,000 potential donors on the Centre's lists, 5,000 of whom have to be assembled every week for sessions which are held throughout Essex, East London and East Herts.

Selection and notification of donors used to be a boring, full-time job for four clerks, but has now been delegated to a modified IBM 3031. The mailing and registration system was prepared in Cobol by Control Data for the Call Plus time sharing service.

The Transfusion Centre in Brentwood sends punched cards with the date, location and number of donors needed to the CDC Data Services Computer Centre in Barnet. It receives back a printout of previous donors, who are notified with computer printed call-up cards.

Blood donor session run by the North-East Metropolitan Blood Transfusion Centre.

'Prestel growth is leading to boom'

PRESTEL is experiencing a slow steady growth, like many other successful innovations before they boomed, Prestel director Richard Hooper said last week.

British companies must maintain their rate of investment to build capacity for the take-off if they were not to lose the market to foreigners, he added.

In the case of commercial radio in the UK, the initial slow growth period lasted five years before the market boomed. By that time most British participants had pulled out or cut back their investments, allowing Canadian companies to take control of the market.

Who will buy?

"My message is: Hold your nerve, but keep it disciplined," Hooper said. "The marketing push needed is no longer 'look at this wonderful thing which will do everything for everyone' but 'which market sectors will buy, how much for and why?'.

"Eighty per cent of the sets in use are in the business market and a quarter of those are in travel agents. The investment community looks like being the next.

Steady slog

"During this period you lose some friends because you cannot give them what they want. A year ago people thought it would sell itself, but it won't."

Deputy director Mike Ford said that New York stockbrokers Merrill Lynch had just become the first overseas information provider on Prestel International and he hoped to sign up more US companies in the next few months, as well as others in Holland, Switzerland and Australia.

Selling the Prestel system abroad had passed the initial phase in which some people wanted to get in quick. It was now a steady hard slog. But he was able to point out to potential buyers that Prestel was still the only system that could carry out billing.

Director offends French

DIRECTOR Richard Hooper has offended his French rivals by announcing that expansion of the Prestel service was three months ahead of schedule, while Teletel is slipping behind.

Prestel is expected to be available to 60% of UK telephone subscribers by the end of the year instead of next March. Plans for Teletel given to the International Telecommunications Union last year gave the date for complete installation of the electronic directory in Ille et Vilaine as 1981, whereas at Viewdata 80 in March it was said that installation of terminals would begin in 1981 and be completed in 1982.

Prestel's critics point out that earlier British Telecom estimates were for 50,000 Prestel sets installed by the end of this year, whereas the current total is only 5,200. The current estimate is for 20,000 by the end of the year.

The autumn expansion programme was launched in Leeds last week and this month service is due to be available in Brighton, Reading and Sevenoaks. In the next few months it is to be extended to Cardiff, Belfast, Norwich, Bournemouth, Chelmsford and Luton.

MFI floppy plant in Scotland

US-BASED magnetic peripheral manufacturer MFI has opened a purpose-built factory at Livingston in Scotland to build double density, double-sided floppy disc drives. The Livingston plant will employ 200 people and replaces MFI's original Scottish factory with its workforce of 50.

Japan early hookup to Telenet and Tymnet

JAPANESE companies and research institutes will be able to access US databases connected to the Telenet and Tymnet packet switched networks from next week, when the Japanese overseas telecommunications monopoly KDD, Kokusai Denshin Denwa, opens its ICAS international computer access service.

This is a temporary service, to be replaced by the Venus international packet switching service now awaiting government approval and expected to start next spring.

Packet network

ICAS is based on a Tymnet Engine 32-bit switching mini running the Isis, Internally-Switched Interface System software supplied by Tymnet in the US. Users will be able to connect to the node computer in Tokyo or a concentrator in Osaka.

X25 will not be implemented on ICAS and no connections are planned to countries other than the US. These will have to wait for Venus. Tymnet Engines are also being used by many PTTs in Europe to provide packet switching links to the US.

Within Japan, the internal telecommunications monopoly Nippon Telephone and Telegraph has launched the packet switching version of its DDX data communications service following government approval in June. Service began at the end of July for 15 users on 33 circuits.

The packet network is based on a switching centre in Tokyo, which uses the D10 switching processor designed by NTT in the early 1970s, and 19 remote multiplexers with packet assembler/disassembler PADs. Both products are built by all four of Japan's main telecommunications manufacturers: Nippon Electric, Fujitsu, Hitachi and Oki; and they have been extensively marketed to foreign PTTs.

The DDX circuit switching service, which began last December, now has 26 users on 77 circuits.

Multi-option Stentofon

THE latest addition to the Stentofon range of loudspeaking intercom systems made in Norway by Stentor has been introduced to the UK by Cable and Wireless.

Called the Pamex MPC, the system is based on the Texas Instruments TMS 9900 16-bit microprocessor which enables the user options to be entered or changed easily.

Options include pre-settable priorities for cutting into or cutting off calls, automatic call transfer, conference calls, piped music distribution, camp on busy or group hunt on busy and automatic call-back.

Costs come out at about £200 per station and the system has up to 23 speech channels. This compares with the older Pamex processorless system which costs £175 per station and has up to 19 speech channels. Both systems can serve virtually any number of stations; one system with 3,200 stations and several 1,000-station systems have been installed.

Post Office approval has been given to connect to leased lines for linking exchanges on separate sites.

BMG business system

ONE of the latest commercial microcomputer systems to be launched in the UK is from a UK manufacturer, BMG Microsystems of Swindon. Called the MS5000, the BMG machine comes with applications software for production and stock control and financial modelling and runs under either of two operating systems from Digital Research. They are the ubiquitous CP/M and its multi-tasking version, MP/M.

Languages that can be supported by the MS5000 include Fortran 80, Basic, PL/I and Pascal but the principal language is CIS Cobol from Micro Focus. BMG claims to be one of the very few distributors in the UK for both CP/M and CIS Cobol.

On the hardware side, the MS5000 is configured around an Intel 8085A and the configuration can be expanded from one 8-inch floppy disc drive and one VDU to multiple screens and 20 megabytes of exchangeable hard disc storage.

BMG is currently developing a more powerful version of the MS 5000 based on the 16-bit Intel 8086 microprocessor. It will provide greater disc capacity and should be available later this year.

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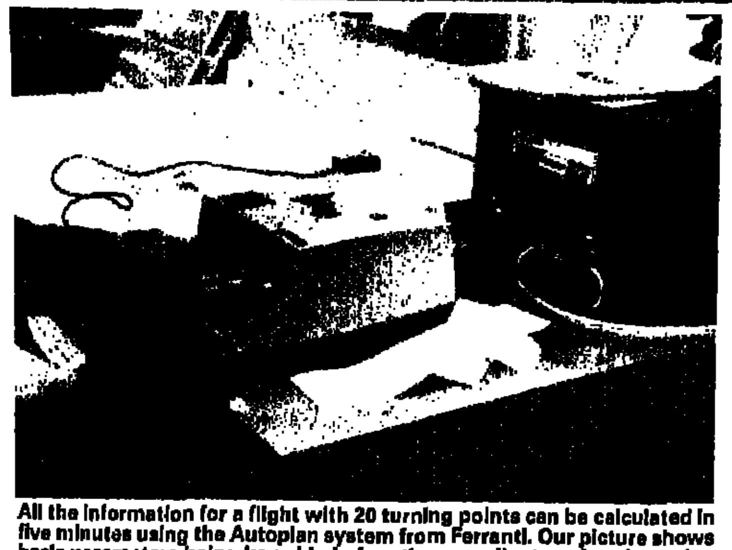
FARNBOROUGH 80 FLIGHT LOG

BY KEITH JONES AND TIM PALMER



All the information for a flight with 20 turning points can be calculated in five minutes using the Autoplan system from Ferranti. Our picture shows basic parameters being keyed in before the co-ordinates of each turning point are captured from the map on the digitising table in the background and processed by the ruggedised Autoplan computer shown in the foreground.

As aeroplanes become faster and more complicated, the need has grown for better flight information quickly. In the military sphere, some form of computer assistance is now mandatory, usually in the controls area.

At the Farnborough 80 show, Keith Jones and Tim Palmer found that not only had micros made a strong appearance. So had things like fibre optics and computer driven flight simulators that give would-be pilots an all-round view in their cockpits.

In the future, more chips will be incorporated, if only to cut down weight and reduce the number of components, hence reducing the likely cost.

Flight plan aid for military aircrews

FLIGHT planning under modern warfare conditions is so time critical that aircrews could make good use of a computer system that can automatically record map co-ordinates and calculate vital information like the amount of fuel left at the end of each leg of a flight, the leg time, and the overall elapsed time of the flight.

Such a system exists and was demonstrated at Farnborough by the Inertial Systems Division of Ferranti. Called Autoplan, it comes with a map table that operates like a digitiser, the co-ordinates being captured using a push button cursor and two datum points fed into the system at the start of the planning operation.

The datum points and the rest of the basic data needed for the calculations are entered via a keyboard unit that also incorporates a printer for generating the flight information strip.

But the flight planning information is also recorded in an unusual device called PODS, Portable Data Store, which is about the same size and shape as a yo-yo and can be transferred by hand from the Autoplan computer to the digital navigation system of the aircraft.

True-to-life view for the pilot

A TRAINEE pilot in a Redifon flight simulator can now be presented with a fairly true-to-life view of any of the world's airports from any angle at any time of day or night by Novoview SP2 —and the images are completely computer generated.

Novoview SP2 is a new version of the computer-based image simulation system originally adopted by Redifon Simulation as a means of dispensing with the huge TV scanned terrain models that were used to present a pilot with views of the airport he was supposed to be taking off from or landing on.

The original Novoview system, SP1, was limited to dusk and night-time views of an airport but that did not deter civil and military aircraft operators all over the world from buying 170 SP1 systems. With SP2, which was given its world premiere at Farnborough, the trainee can be presented with full colour daylight views through all three windows on the simulated flight deck of an airliner. It can even simulate lightning bolts and fog.

FARNBOROUGH INTERNATIONAL 80

The Novoview SP2 system on show at Farnborough was there by courtesy of Lufthansa and was part of one of two complete Boeing 737-200 simulators being shipped by Redifon to Lufthansa's pilot training centre at Frankfurt.

Lufthansa will be the first SP2 user in the world but should be followed by Braniff, United and Delta, customers picked up by Redifon's US subsidiary, Redifon Simulation Inc, based at Arlington, Texas.

Designed

The SP2 system is front ended by a Texas Instruments 980B minicomputer but the actual image manipulation is handled by hardware custom designed by image processing specialist, Evans and Sutherland of Salt Lake City, Utah. Redifon at Arlington assembles the complete SP2 system.

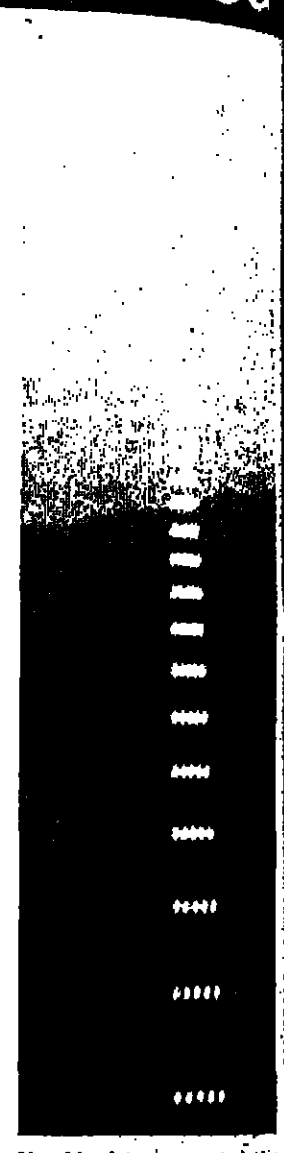
Evans and Sutherland has an agreement to supply Redifon exclusively with image manipulating hardware for flight simulation applications. The images handled by the hardware are created from digitised data captured from maps and photographs of the airport terrain being simulated.

The TI 980B mini accepts signals from the simulated flight deck controls and passes the appropriate image manipulation parameters to the hardware.

Functions

The other software programmed computers used in Redifon flight simulators are 32-bit machines from Systems Engineering Laboratories.

They handle all the other functions of the simulator like the physical movement of the simulated flight deck in response to pilot actions and changes in instrument readings. The SEL machines have superseded Redifon's own 24-bit computers in this application.



No, this picture was not taken by a photographer who forgot to clean his lens. It is a computer simulation of the landing approach as on a Novoview SP2 image generation system demonstrated for the first time at Farnborough by Redifon Simulation. The view changes according to the controls operated by the pilot.

In the Tornado fighter (pictured right), the control surfaces are controlled by the fly-by-wire principle. This means that the direct hydraulic links from the cockpit to the wings and tail are replaced by electrical connection carrying control and sensing data.

But this system can be jammed by electro-magnetic interference.

In a bid to overcome this, Marconi unveiled a Fly-by-Light system which uses optic fibres to relay the control data. The system on show was still under development and includes an in-flight computer based on a 16-bit Texas Instruments TI 9900 micro.

Fibre optics help with air safety

ONE of the big advantages of using fibre optics technology in communications is that it eliminates electromagnetic interference. Since such interference could cause a plane to crash, the use of fibre optics data links in avionics systems would appear essential, yet it is still at the experimental stage.

On its stand at Farnborough 80, Marconi Avionics had a working demonstration of an experimental system called Fly-by-Light which it is developing as an alternative to the so-called "fly-by-wire" systems now being used in aircraft like the Tornado multi-role fighter.

With fly-by-wire, the direct hydraulic links between the cockpit and the control surfaces on the wings and tail are replaced by electrical connections carrying control and sensing information.

Replaced

But fly-by-wire on planes like the Tornado is vulnerable to deliberate electromagnetic interference by the enemy, which could have disastrous consequences.

With Fly-by-Light, the metal connections between the control surface sensors and actuators and the cockpit controls are replaced by fibre optics links while the rest of the system is essentially the same as fly-by-wire.

The Marconi system is still very much at the laboratory bench stage and includes a simple in-flight computer based on a 16-bit Texas Instruments TI 9900 microprocessor. The 9900 connects mock-up cockpit controls to hydraulic rams that move a model control surface.

Marconi admitted that the TI 9900 was only programmed at the moment to handle pre-flight self-test although there was the possibility of adding automatic servo control later.

Fly-by-Light is being developed at the Marconi Avionics Flight Automation Research Laboratory at Chatham, Kent.

Our picture shows part of the line-up at Farnborough 80, which closed on Sunday. In the foreground is the fighter version of the Tornado. Behind it is the ground attack version, and third in the line-up is a Jaguar fighter bomber. Late news from the show is that GEC was pushing viewdata hard. "The Post Office wants as much effort behind Prestel as possible," commented a stand attendant. Ironically, details of the show were not ready on the Press preview day.

Double fillip for GEC

LAUNCHED at Farnborough two years ago, the GEC 4080M, military version of the company's commercial minicomputer, now boasts two substantial orders.

The first is in the Nimrod air early warning aircraft and the second is for the second stage of the Wavell command and control system, where the main contractor is Plessey. GEC is supplying 4080Ms to Plessey for use in wheeled and tracked vehicles under an £8 million contract while Plessey is writing the software.

The order is a minor coup for GEC Comuters because the first stage of Wavell used DEC PDP-11 minis. A key feature of the 4080M is that it is 100% software compatible with the commercial versions of the mini.

In the version supplied for the Nimrod, low power Schottky TTL circuits are used to reduce power consumption from one kilowatt to 300 watts.

Memory is core rather than semiconductor, mainly because of the timescales over which such contracts are agreed, but also because a non-volatile memory was required.

Avionics goes digital

LIKE the UK public telephone network, avionics systems are becoming all-digital, only at a much faster pace. As with British Telecom's System X, one of the main aims of digitising information flow in an avionics system is to limit the number of physical connections by time division multiplexing the information from several channels on to one line.

Complex

For British Telecom this technique avoids the expense of constructing additional telephone lines. For the avionics systems builder it overcomes the serious weight problems that could otherwise be created by adding more and more cables and connectors as the system becomes more complex. Indeed, the number of connectors can form a network as complex as many telephone systems.

Firms like Marconi Avionics are now working to the US standard, MIL-STD-1553, for a two wire bus that multiplexes digital data systems on aircraft. Marconi has been spurred on by the fact that the standard has now been accepted by NATO and by the UK Ministry of Defence.

Monitor

The first implementation of a system based on MIL-STD-1553, albeit an initial version, was in 1975 in the F16 fighter built by General Dynamics. Since then the F16 has been selected jointly by four NATO air forces: Belgium, Holland, Norway and Denmark, in preference to several strong competitors.

Taking advantage of the widespread adoption of MIL-STD-1553 Marconi Avionics has developed the Bus Control Unit, BCU, which can monitor several buses and implement recovery operations if it detects an error on the data bus system.

The BCU is configured around a 16-bit microprocessor and comes with software consisting of an executive around which individual message control and error handling modules can be established and modified with ease during the life of the host aircraft.

The F16 fighter (pictured above) was built in the US by General Dynamics and was the first aircraft to be equipped with avionics systems using the US MIL-STD-1553 two wire digital data bus. This standard has now been generally adopted for time division multiplexed avionics networks in military aircraft. The system is said to reduce dramatically the number of cables and connectors normally used.

IAL's Stratus system is operational

INTERNATIONAL Aeradio had a cardboard replica of its Stratus voice communications management system on show at the last Farnborough two years ago, but this year the version shown was fully operational.

Stratus is a modular system built up of Zilog Z80-based microcomputers. One of these handles all the operator support functions, another is needed for each set of four channels, and a third is used for system diagnostics.

It handles speech coming in from radio, telephone or intercom, and the operator can switch an incoming message between any of the media.

Scotland Yard has ordered a Stratus for use with its Univac 1100/80-based command and control system, where the operator will be talking to a wide range of different people from policemen on the beat or in patrol cars or helicopters, to emergency back-up services like the AA and the RAC.

The system for Scotland Yard will use time division multiplexing of speech. The original version used space division multiplexing, but the former is more compact and efficient.

The next big contract that Stratus is entered for is the air traffic control centre at West Drayton, where again, IAL will be proposing the time division multiplexing version.

The first Stratus installation will be in Abu Dhabi later this year.

COMPUTER WEEKLY is holding its Annual Ball on Friday October 10 at the Royal Lancaster Hotel, London

Cabaret

RAY ALLEN and LORD CHARLES

Computer Weekly is holding its fifth annual Ball. Last year nearly 700 people attended what has come to be regarded as the computer industry's big night out.

This year the Ball will again be held under the patronage of the British Computer Society. And proceeds will once more be devoted to a deserving cause associated with the computer industry.

So why not help us to help others? And at the same time enjoy a pleasant evening with friends and colleagues.

Order form — COMPUTER WEEKLY Annual Ball

Tickets are available at £19 for a single ticket. Included in the price is a dinner, cabaret and dancing until 2 a.m.

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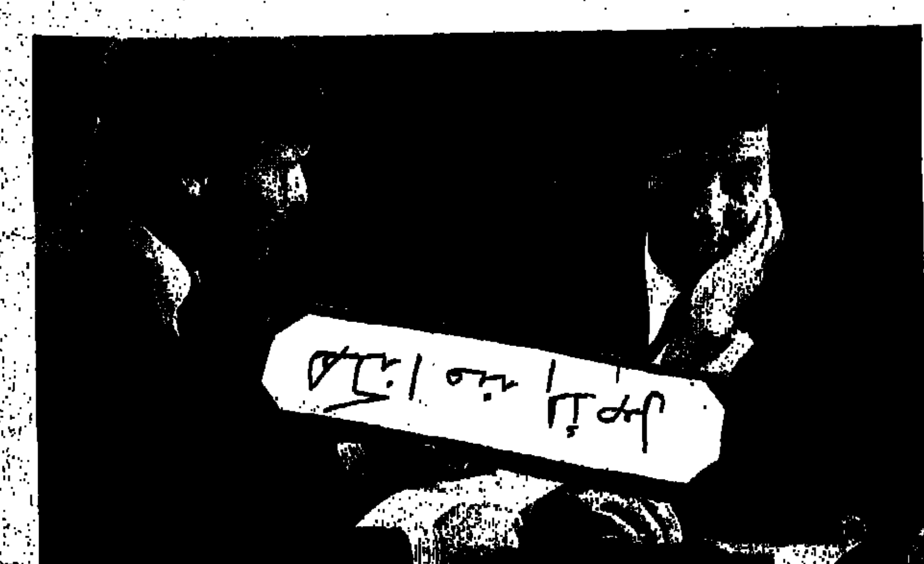
When completed this order form should be returned together with your cheque to Harry Hutson, Advertisement Manager, Room 13, Dorset House, Stamford Street, London SE1 9LU.

UNFORTUNATELY, SOME COMPUTER COMPANIES ARE ALL TALK.



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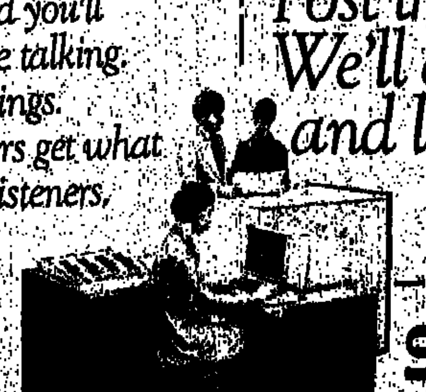

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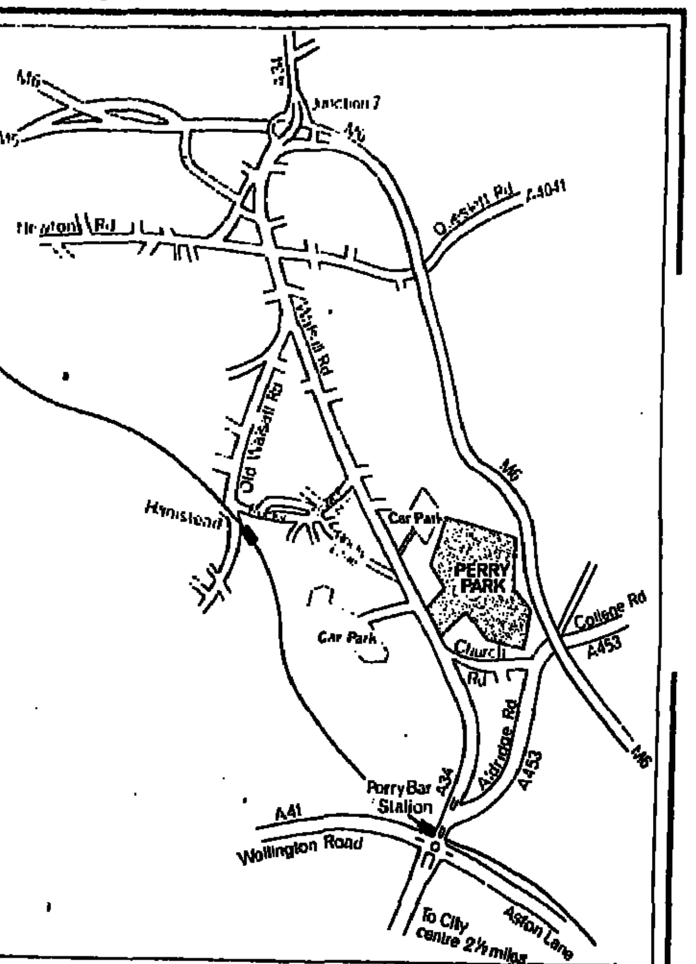
BY TRAIN: from London Euston the service is about every half-hour to Birmingham New Street. There are regular services from Liverpool and Manchester, although some passengers from the North West may have to change at Stafford.

For passengers from the North East, South West and Wales there is about an hourly service from main cities to Birmingham.

When arriving at New Street, there are services to Perry Bar, the nearest station to the stadium, but these are intermittent. It may be quicker to take a bus.

BY BUS: Services from the city centre to the stadium include numbers 33, 42, 46, 51, 52, 59, 90, 91, 107 and 113. Passengers will require loose change for the automatic ticket machines.

BY ROAD: Turn off the M6 at Junction 7 on to the A34 and head down the Walsall Road for about a mile. The stadium is on the left.



All systems go for finals of the DP Olympics

IT'S all systems go for the finals of DP's Olympics, Computastars, which is being held this Saturday, September 13 at the New Alexander Stadium, Perry Bar, Birmingham.

The latest news is that, while competitors are waiting for the results, an international tug-o-war will take place between a UK team, a Dutch team and a Wright Air Conditioning team.

Each team will consist of five men and three ladies. The prize is a barrel of beer which has been donated by Wright Air Conditioning.

Groups

This year all the teams will compete in all the events, the prizes being awarded to the teams and individuals with most points.

The teams have been organised into eight groups. These are:

COMPUTASTARS 80

Group 1 (men): Midland Household Stores, Raet, Safe Computing, British Leyland Systems and Digital Equipment.

Group 2 (men): Infonet, Digital Equipment, Woolworth, Compower and NPI.

Group 3 (ladies): Thorn EMI (Telford), Legal & General, CEBU, Metal Box, Midland Household Stores and Safe Computing.

Group 4 (men): United Biscuits, Swet en Zeitlinger, CMC, Rank Toshiba and Data Process.

Group 5 (ladies): Rowntree Mackintosh, Control Data, ARC, London Transport, United Biscuits and Thorn EMI (Hayes).

Group 6 (men): Data Logic, Segas, CEBU, Computer Data Services and Mettoy.

Group 7 (ladies): Reckitt & Colman, Norwich Union, Segas, Infonet, Basams and PMSL.

Group 8 (men): RAF, ARC, Rowntree Mackintosh, Control Data, Blackwells, and London Borough of Lambeth.

Parking

Admission on the day is £1 for adults and 60p for children under 14. Both alcoholic and non-alcoholic refreshments will be available and there is free car parking.

For the children there is an art competition, sponsored by Safe Computing.

Events start at 10:00 am and it is hoped that the presentations of trophies, which are worth over £3,000, will be made about 6:00 pm, 15 minutes after the last Computastars event.

Computastars is sponsored by Computer Weekly, Wright Air Conditioning and the Dutch magazine Computable.

Medals for first, second and third places in both team and individual events have been provided by Wright Air Conditioning.

Presentations

Art competition: Safe Computartist Under 10 and Safe Computartist, Over 10, both presented by Ken Jackson, general manager of Safe Computing.

Best individual Dutch lady: BCCS Rose Bowl, presented by Wes Evers of BCCS.

Best individual Dutch man: BCCS Cup, presented by Wes Evers of BCCS.

Best Dutch ladies' team: Computable Trophy, presented by Ad Coyajee, publisher of Computable.

Best Dutch men's team: Computable Trophy, presented by Ad Coyajee, publisher of Computable.

Best UK individual lady: Computer Weekly Rose Bowl, presented by Simon Timm, Editor of Computer Weekly.

Best UK individual man: Computer Weekly Cup, presented by Simon Timm, Editor of Computer Weekly.

Best UK ladies' team: Anne Wright Trophy, presented by Anne Wright, director of Wright Air Conditioning.

Best UK men's team: George Wright Trophy, presented by George Wright, chairman of Wright Air Conditioning.

Best international bureau: Peterborough Data Processing Cup, presented by Gillian Evans-Gordon, director of Peterborough Data Processing.

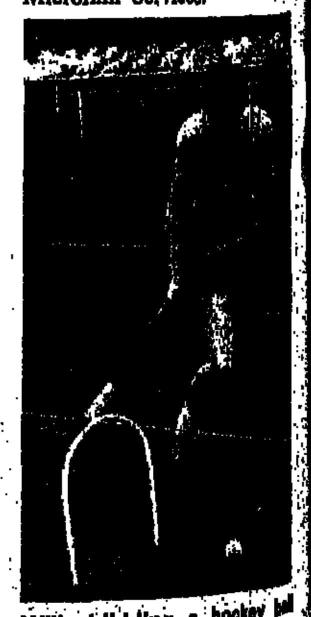
Best international combined ladies' and men's team: Queen Hotel Cup, presented by Geoff Brown of Trust House Forte.

Best international individual lady: Computastars Goblet, presented by George Simpson.

Best international individual man: Computastars Tankard, presented by Beverley Simpson.

Best international ladies' team: Ferguson-Francis Trophy, presented by Gordon Cairns of BCCS.

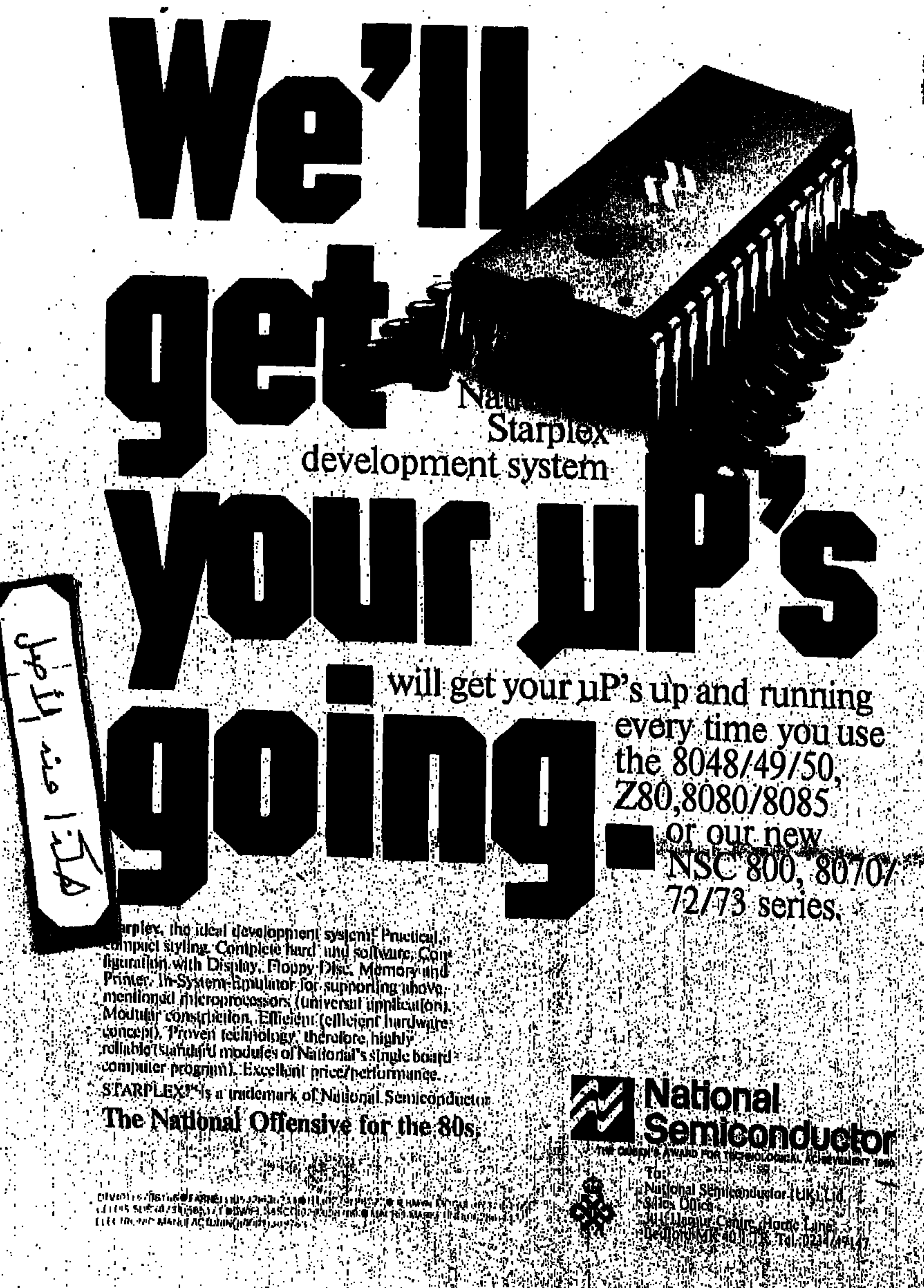
Best international men's team: Ferguson-Francis Trophy, presented by Maureen Cairns of Croydon Microfilm Services.



Will dribbling a hockey ball (above) be one of the events at Computastars? Or will there be a steeplechase (below) with all the thrills of the water jump?

The only way readers and competitors will be able to find out is on the day.

Organiser Gordon Cairns is keeping all the details close to his chest but a programme will be available on the day with full details of the final.



First System 38 in UK

THE relational database of IBM's System 38 has recently bowled over the first UK user to take delivery (CW, Sept 4). The user, the Hospital Saving Association, is now able to access any of its 700,000 contributors in a multitude of ways — alphabetically, by group number, and even location.

Previously access routines had been a problem, when claimants did not submit their policy number, which is used as a key. The relational database (on System 38) obviates the need for special input and sort programs, and provides automatic updating of all related files on amendment of one. Mike Finch, HSA's management services manager, reports that system development time has been cut by two-thirds, and programs for one particular business application were reduced from 16 (a total of 2,000 lines) to one program of 356 coding lines.

Other features of System 38 are the interactive workstations, consisting of an online screen and printer which can be located almost anywhere; the Control Program operating system, and the single level storage.

From the programming point of view the "query" function can retrieve and present data in a variety of formats without conventional programming.

Peter Machell, systems analyst at HSA, finds System 38 "not difficult" to program, and the department is taking the opportunity to redesign and rewrite rather than convert. It estimates that it will take two programmers 12 months to write the 300 programs and aims to make going live coincide with a move next year to Andover.

HSA said that programming staff had gradually been reduced from 10 for their System 3 model 15 to the present four that are necessary to cope with the more streamlined programming.

The association has a model 5 System 38 with two 3370 disc drives giving 1.3 gigabytes of storage, two system printers and two tape drives.

Mike Finch (right) takes delivery of the first System 38 to be shipped into the UK, from IBM manager Ken Crookes at the Hospital Saving Association in Lancaster Gate, London.

Micro/mini system aids bomb-making

MICROPROCESSOR and minicomputer technologies have been combined by Ferranti Instrumentation to aid the production of a bomb/land mine combination. The system is being used for automatic testing and quality management tasks during the test and inspection stages of the bomb's manufacture.

The minicomputer is a Ferranti Argus 700G with a present 64-megabyte disc capacity due for an increase to 300 megabytes. It has been programmed with the MoD approved Coral-66.

Dotted around the production plant are 15 test points, all of which are hooked up to the Argus. These test points are Motorola 6800-based custom-built packages.

It is planned that the fruits of Project JP-233, or what has otherwise been described by a Ferranti spokesman as the "manufacture of an aerially delivered area denial system", will eventually be filtered down to the civilian market. In the short term Ferranti would like to sell its Data Management System to other weapons manufacturers.

Minc range extended

THREE additions to its range of Minc laboratory computer systems have been announced by Digital Equipment. Called the Minc-23, Minc DEClab-23PT and Minc DEClab-23RSX, the new systems are based on the PDP-11/23 processor and are software-compatible with all current Minc systems.

A portable system with one megabyte of diskette storage, the Minc-23 uses Minc Basic software and can also run RT-11/Fortran.

Minimum configuration for the Minc-23 includes the PDP-11/23 processor, the Minc box, the VT105 graphics terminal and dual 512K diskette drives at £9,610.

For Minc DEClab-23 configurations, minimum equipment includes the PCP-11/23, 10 megabyte hard disc, the VT105 graphics terminal and the Minc box.

Bottom price for the Minc DEClab-23RT is £14,000 and £19,030 for the Mince DEClab-23RSX. All Minc systems can run standalone or link with Digital networks under DECnet, using Minc Network File Transfer software.

'Voice' warning of disasters

NEXT time your building catches fire you might hear a cool, slightly bored Dalek-like voice telling you about it over the telephone. Butler National's range of Automatic Dialling Alarm Systems (ADAS) send emergency messages down telephone lines using a synthetic voice.

The company, based in Lenexa, Kansas, has been manufacturing voice synthesis alarm systems for the past 18 months and is clearly anxious to secure a piece of the "talking chip" market. This market may well be worth an annual $3 billion by the end of the decade.

There are three voice synthesis techniques: linear predictive coding, LPC; phoneme reproduction, and waveform analysis. Of the semiconductor houses involved, Texas Instruments favours the LPC method and National Semiconductor has plumped for the waveform analysis approach. Butler National also uses waveform analysis.

Monotone

Waveform analysis, or the homomorphic filtering of speech signals, uses an algorithmic compression technique originally developed at the University of California in Berkeley. Speech sounds are simplified and digitised for storage on a standard memory chip. This process eliminates pitch fluctuations and severely limits amplitude fluctuations so that the resulting voice is a monotone.

All ADAS devices are connected to a telephone line through an FCC-approved coupler circuit so there is no need for any struggling with modems. According to the kind of sensors fitted variables such as temperature, pressure, tank level and critical flow rate are monitored. Butler National uses off-the-shelf sensors. On sensing an irregularity, a designated list of people is called and the dialling sequence maintained if nobody answers the first set of calls.

Priorities

The company's latest ADAS model, the ADAS VI, has a 200-word vocabulary tailored for an "average" incident. The repertoire includes "location", "emergency" and "facility". The ADAS VI is recommended for operation in nuclear power plants, gas refineries, pipelines and docks and should prove an invaluable prop in forthcoming disaster movies.

A second version of the ADAS VI is fitted with a Fujitsu 64K bubble memory cassette which stores lists of phone numbers and allows priorities to be set within those lists. The bubble memory cassettes are available for £562 from Tempatron of Reading. The ADAS VI costs $15,000 although this price does not include software development.

Polite

A Butler National spokesman claims that all ADAS models are unfailingly polite, as they always remember to sign off with a courteous electronic "bye". This is reassuring news. It might be the last word you ever hear.

Jacquard names agent

AM JACQUARD Systems has selected Efficient SA of Brussels as its distributor in Belgium and Luxembourg.

Efficient will concentrate selling efforts around the expandable J100 and the stand alone J500 business computers. Both machines carry out simultaneous word and data processing.

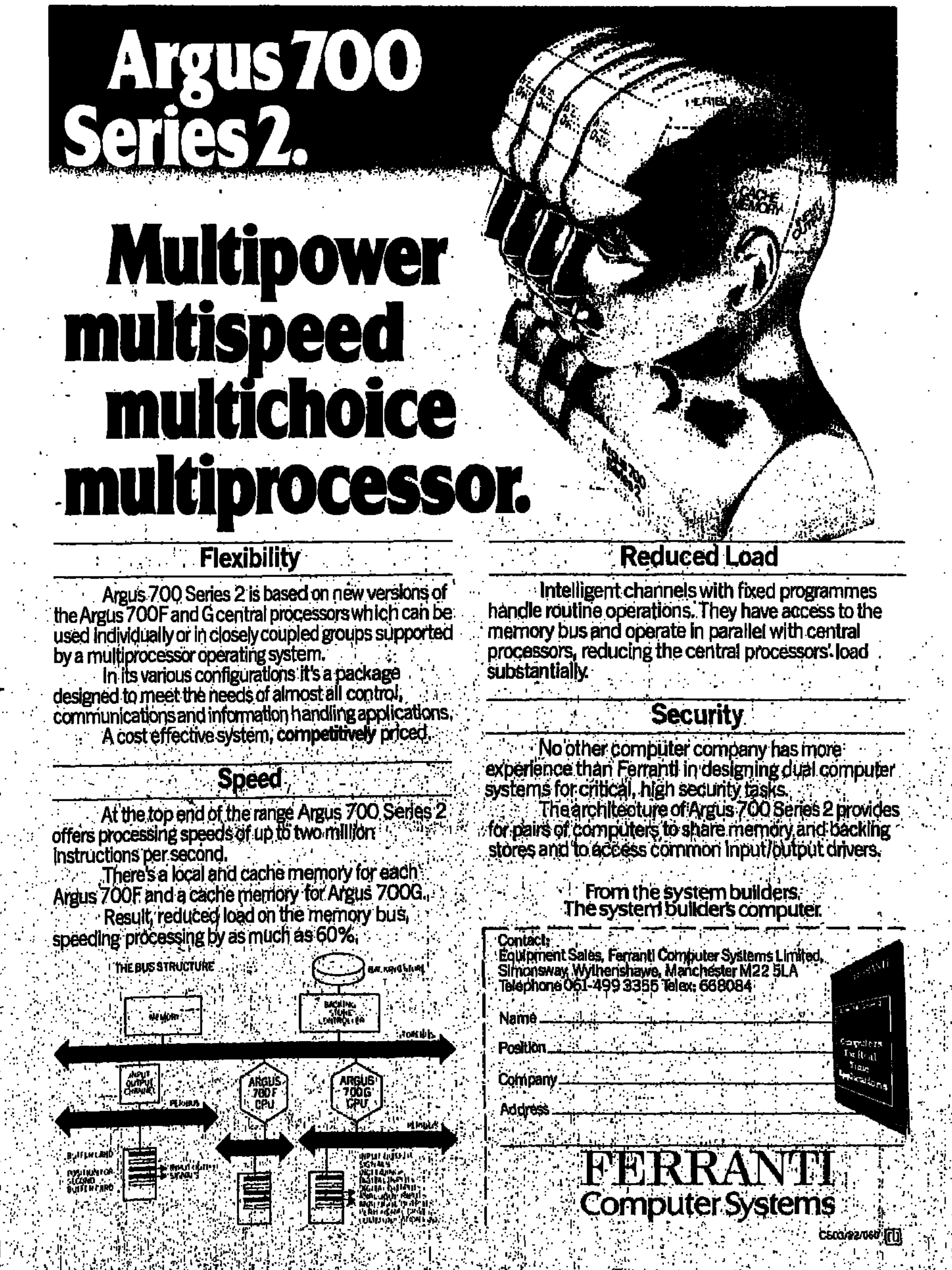
The distributors have pledged to supply an inhouse software service as well as providing off-the-shelf packages. Efficient is part of Information and Communication United, a group which had a turnover of over $160 million last year.

Fast printer for HP users

USERS of Hewlett-Packard's HP-3000 Series 30/33 are promised printing speeds of up to 1,800 lines per minute if they purchase a controller board from BDS Computers.

The HPI-33 costs $2,500 and is for BDS printers which range in price from $9,200 to $31,500. It has a Zilog Z80 CPU and an Intel 8291 talker/listener device.

The 8291 sends single lines of data directly from the HP general purpose interface bus to the printer. A 2K-byte EPROM and a 1K byte RAM provide program memory requirements.



How to run a business and stay in the black

by Hugh de Wet

BUSINESSES are in for a tough time ahead, possibly the toughest since 1974-75. With interest rates still alarmingly high, inflation near 20 per cent, and the cost of energy and raw materials escalating, everyone in industry is short of cash.

Such cash shortages quickly lead to serious cash flow problems, and it is only a short step from there to insolvency. Even well established companies with full order books are going under simply because of a failure to understand the principles of cash management. According to Dun and Bradstreet, the business information company, the rate of company liquidations in the first half of 1980 was higher than at any time since the war – over 120 a week.

"Only those businesses which plan their operations properly, particularly in the related areas of credit and collections, will survive the current recession with its inflation and shrinking markets," says Don Hadick, general manager of Dun and Bradstreet's commercial collections division.

Steal

One of the things to keep a sharp eye on is the payment period for accounts due. If customers are short of cash in the bank they may decide to tide themselves over at your expense.

Instead of going to the bank for a loan, it is far cheaper for them to sit on their outstanding accounts and steal your credit.

Remember, this practice seldom pays off. Eventually those who steal credit earn themselves a bad reputation. This can either result in them being charged a higher price for goods and services supplied, in order to finance the cost of carrying the account, or alternatively, finding themselves unable to obtain vital supplies when they need them most.

There is a real danger in leaving accounts outstanding for long periods, no matter how much or how little clout your customer has, because you will gain a reputation for being soft on credit.

Procedure

So how do you ensure fast payment while still remaining on friendly terms with your customers? It is a good policy to follow a standard procedure with all invoices.

1. Send all invoices immediately, via first class post. The extra speed is worth 5p per £100 per day at current interest rates (assuming 18 per cent) – more than twice the difference between first and second class postal rates.

2. Send a monthly statement showing all invoices, even if not yet due. This will remind your customer of payments which will shortly be due, and will also establish from an early date that your company has an efficient accounting system which is likely to follow up debts promptly.

3. If an invoice is not paid on the due date, flag the file for action in 10 days' time if payment is not received. Any statements sent in the interim should have a notice that: "This statement contains items which are now past due."

4. If after 10 days the invoice is still unpaid, action should be taken. Make a personal telephone approach to your customer to establish the validity of the claim and check that there are no complaints. If the invoice is not in dispute, establish a firm payment date.

5. Follow this up with a written reminder, if possible directed to a named individual.

Ill will

If payment is still not made it is time to call in a collection agency. Many businessmen are reluctant to call in outside help, feeling that this might sour relationships with their customer. But in fact the reverse is true.

Attempts by you to push for payment beyond this point can lead to arguments, shouting matches and such ill will that the customer may be lost altogether. An outside negotiator is in a good position to settle the situation amicably without involving you in a direct dispute, because he is professionally dispassionate.

It is obviously important to choose a reputable agency, and it is an advantage if it is linked with a credit information and reporting agency. Few businessmen in their right minds would want to get on the wrong side of such an organisation, and will pay up remarkably quickly if they are contacted by an agency – it is simply not worth risking their credit ratings for the sake of one debt.

Quite often it is not even necessary for the agency to contact the customer. A note in your letter confirming the final settlement date which mentions that a particular agency will be contacted if the invoice remains unpaid is usually sufficient to spur the debtor into action.

It is, however, important to put an unpaid invoice into the hands of an agency as soon as possible after the final settlement date is passed. The longer an invoice remains unpaid the more difficult it is to collect – and the more it costs, as can be seen from the table.

Failure

Cost is always a factor when considering a collection agency. Most agencies charge a percentage of the sum at stake and the fee is contingent on the successful collection of the debt. These costs are relatively low when you consider the cumulative cost of leaving the debt outstanding plus the administrative cost of chasing it up. Don't forget that you get what you pay for.

Many companies find that it is worthwhile to maintain permanent links with a debt collecting agency. Such an arrangement allows the agency to go into action more quickly and efficiently when a problem arises, as they already know the background against which they are operating, the nature of the client's business and the types of customers they will be dealing with.

The problems involved in collecting overdue payments are vastly increased when your customer is based outside the UK. Many companies, anxious to build up sales by exploiting overseas markets, rush to sell goods to overseas customers without fully realising the huge risks involved, and many consequently chalk up heavy losses.

Some of these companies have been lulled into a false sense of security because of the insurance cover provided by the Export Credit Guarantee Department. What they do not realise is that unless they can prove they have thoroughly researched the creditworthiness of their customer, they cannot claim for losses on unpaid bills.

Differences

Language differences, differences in business ethics, morals and culture, poor communications and reticence in providing information all hinder the process of making credit decisions. It is also important to be much more wary of references from overseas than you would of a potential customer in the home market. Friendships, political and family affiliations and financial tie-ups which you do not know about can all serve to make references useless, and the same problems apply with overseas banks.

If you decide to grant credit to an overseas customer, you must be ready to deal with collection problems. Bear in mind that export collection periods are double those for domestic sales – between 90 and 130 days – putting an extra strain on your cash flow.

Make sure that your customer clearly understands your credit terms and any interest rate you charge on overdue accounts. If an account does fall overdue take action immediately. A debt collection agency with an office in your customer's country is vital here. If for one reason or another your customer is not paying his bills there is very little you can do from several thousand miles away, as our courts have no jurisdiction overseas.

TABLE 1: COST OF DELAYED RECOVERY OF DEBT BASED UPON A SINGLE DEBT OF £1,000

	Overdue Period					
Cumulative costs as at:	Month 1	Month 2	Month 3	Month 6	Month 9	Month 12
Financing: Based on an annual interest rate of 20%	£16.67	£33.61	£50.84	£104.26	£160.39	£219.38
Accounting overheads and communication costs – letters, telephone calls, personal visits, assuming £10 per month	10	20	30	30 (no further communication with debtor)	30	30
Inflation cost based on an annual rate of 20%	16.67	33.61	50.84	104.26	160.39	219.38
TOTAL COST	43.34	87.22	131.68	238.52	350.78	469.76
AGENCY FEE @ 7½% upon successful collection			75.00			
		REAL COST	206.68			

● Debt recovered through agency after three months: net gain £793.32.
● Debt written off after 12 months: net loss £1,469.76.

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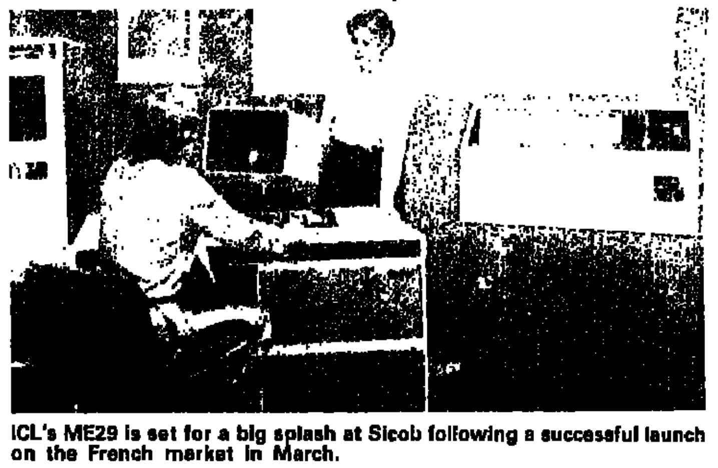
More engineers. We have 200 at your beck and call.

What you may not know is that every year we send our engineers back to school for a four week update on the latest computer developments.
What's the alternative to being serviced by an independent computer maintenance company?

SICOB

TIM PALMER PREVIEWS THE PREMIER FRENCH COMPUTER EVENT WHICH OPENS NEXT WEEK

ICL is back at Sicob after three years



ICL's ME29 is set for a big splash at Sicob following a successful launch on the French market in March.

THE return of ICL after three years in the wilderness, the emphatic reappearance of Univac and the introduction of a whole new specialist section dedicated to office techology are among the highlights of the 31st Sicob, which opens on September 17.

Running through to September 26, the premier French computer event will once again fill the CNIT Centre at La Défense, just outside the western limits of the old city of Paris.

Fill is an understatement: each year the show takes up more and more of the open air plaza outside Level Three of the domed building, presenting the organisers with ever more intractable and unexpected problems.

The innovations of the past two years, the Sicob Boutqiue for personal computers and the specialist exhibition dedicated to allowing OEM vendors to meet systems builders without a clutter of general visitors around, will be taking up even more roof space this year. They will be joined by this year's main extension of the show – a section dedicated to the converging new technologies for the office of the future.

Windy

Claude Chappey, one of the enterprising coterie of businessmen who founded the show in the belief that Paris needed a big office and automation exhibition, and still run it as a hobby, explained the problem to Computer Weekly.

"The space on the roof is limited to 4,000 square metres but lack of space is only one difficulty. There are all these big new skyscrapers around the centre, and they act as a wind funnel.

"As a result, the roof is the windiest place in Paris, which makes it extremely difficult to anchor temporary structures.

"After we had put up the sheds for the OEM section, it was pointed out that it was right over the railway station of La Defense: would the trains passing underneath cause electrical interference which would cause trouble with the equipment?

"We could not afford to take that risk, so we had to put down a special, electrically isolating floor."

The station is on the fast RER line which runs across central Paris, deep underground, and is by far the fastest and most effective means of getting to and from the exhibition centre – provided that visitors choose an hotel which is close by an RER station. The principal ones are Charles de Gaulle-Etoiles, Auber-Opera, and Châtelet-Les Halles.

"Then the authorities came along and pointed out that we had "forgotten" to lay on water or lavatories in the sheds!" said Chappey ruefully.

The French PTT also takes space on the roof, and with the battle over rival public teletext and viewdata services hotting up, this should be of key interest this year.

From the UK point of view, perhaps the most noteworthy aspect of the exhibition is that ICL is back with a bang. It had planned to drop out in 1976, but that year acquired Singer Business Machines which gave it a ready-booked platform.

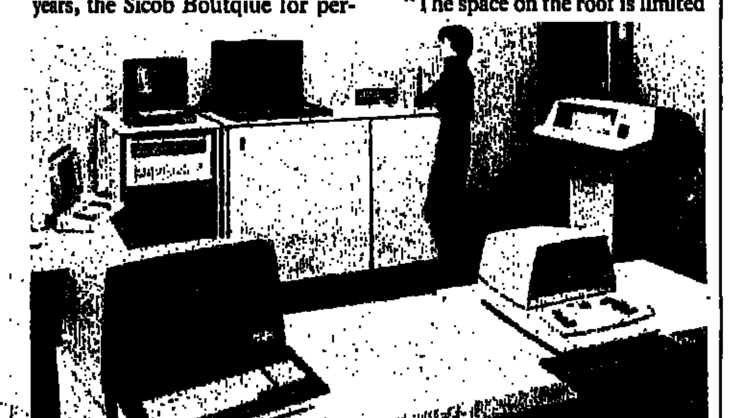
But the following year it surrendered its space – always a dangerous thing to do at Sicob, because to get back in again a company has to wait to step into "dead men's shoes."

Highlight of the ICL display, will be the ME29 computer, over 300 of which have been sold already. The whole gamut below the ME29 will also get an airing – the System Ten 120, the latest incarnations of the 1500 series, plus the 7700 word processors and terminals for point-of-sale and factory data collection.

ICL will wave the flag for the British viewdata standard, available on the ME29, and word processing will also be demonstrated on the new machine.

A British newcomer to Sicob will be Unilever's UCSL Microsystems, which will use the show as a launch pad for new products.

The company specialises in the design, manufacture and marketing of portable terminals, and claims to be able to provide custom solutions quickly and economically using its own proprietary software generation system.



CMC France is now a British company, since it is owned by Redifon's parent Rediffusion. The biggest CMC France product is the CMC 7600, built around a PDP-11 mini and shown here. The CMC 7600 is being imported to the US by Pertec, now German-owned, as an upgrade for machines installed by the now-defunct US Computer Machinery Company whose base was acquired by Pertec. CMC-France will also show a new standalone business system, the 7030, which is built around the Intel 8086 16-bit micro.

'Host' firm offers a tour de force

AS unofficial "host" for the computer side of Sicob, CII-Honeywell Bull always puts on a tour de force, and this year will be no exception. The company will construct the demonstrations on its main stand around its networking system Distributed Systems Architecture. This might look like a declaration of war on ICL, which has just announced Information Processing Architecture, but the approaches taken to networking by ICL and by CII-HB are probably the most nearly compatible of any of the major manufacturers.

The new Questar/T terminals, not as yet offered in the UK, will be featured.

Box offices

Word processing with the new TTX 80 system operating with a Level 61/DPS will be demonstrated, as will the 61/DPS system for theatre box offices, which has been adopted by the Comédie Française.

Perhaps the most exciting development to be shown this year by CII-HB is its fascinating new intelligent credit card, the CP8.

The card will be demonstrated with the special readers attached to Level 6/23 and 6/53 minis. In France the minicomputers are known as Mini 6, but the models are the same as those offered by Honeywell.

In one demonstration, the contents of the unprotected part of the card's memory will be put up on a screen, and in the other use of the card to access pay-as-you-look or confidential databases will be demonstrated. The latter application is of particular interest in the context that the French government has decided that in the post-industrial world information will be a source of power and that too many of the world's major remote access databases are US owned and operated.

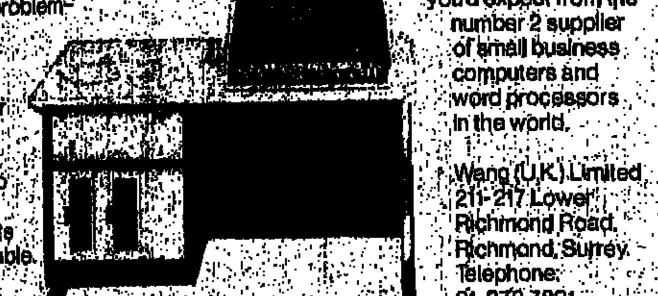
R2E, the innovative microcomputer pioneer which had products on the market when Apple was still a twinkle in the eye of a couple of college drop-outs, is now almost wholly owned by CII-HB, and will announce a new line of microcomputers called Questar/M on the first day of the show.

CII-HB will also be in the office automation section, offering its new TTX 80 and TTX 60 word processors. In the OEM section the Cynthia mididisc drives will again take pride of place.

Univac will use Sicob to put a major push behind the new System 80, which supplants the 90/30 and its derivatives from the company's product line. Built around highly advanced ECL eight-bit bit-slice micros from Fairchild – although Univac designed them – the most important role for the System 80 is as an upgrade path for BC/7 users.

Major announcements set for the show include Burroughs B5900, which gets its new worldwide launch on the day before the show opens, and formal signing of National Advanced Systems' agreement with Hitachi on marketing of the Japanese company's top-end IBM-compatible M-200H processor.

Wang's 2200 computer works. Over 35,000 different ways.



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IDPM/LANGTON AWARD

Improving efficiency of the effectiveness people

NEVER generalise. Office work is not an indivisible whole that will be affected evenly by automation. It can be defined and compartmentalised in an infinity of ways, but the neatest is to split it into efficiency work and effectiveness work.

The man on the shop floor is an efficiency worker. What he produces is discrete and measurable and, for 60 years, work study men have measured what his output is and what it ought to be.

Work study men – under the guise of clerical work measurement men – have moved measurement into some office jobs: typists and invoice clerks and data prep girls. What these jobs produce can be measured by what gets into the out tray.

We reach a point, though, where we move into a world of office work where the output cannot be measured in that simple, direct way.

Beyond that point lie the effectiveness jobs, where the output is not pieces of paper, but – through a mystical transformation – the impact these pieces of paper have on the company.

MBO, PPB and ZBB – and all the other techniques which seemed fresh and vital at the time but which were really pretty much the same – have tried but never quite managed to put a measure on what the effectiveness man does. The dividing line can get a shade hazy, but let us settle for this simple classification of efficiency and effectiveness jobs (and people).

Ever since the merchants moved out of their studies and the coffee houses and began to work in offices, the efficiency people have coped with technical change.

Challenge

At the turn of the century their great-grandparents would have listened politely as the office manager shuffled his feet and toyed with his fob-watch mumbling the eternal platitudes about the challenge of change, and evolution not revolution, before announcing that as from Monday there would be installed a typewriter/telephone/duplicator/letter addressing machine.

They adapted.

And, for the efficiency people, 1980's technology is just another tiny incremental step along the road their great grandparents trod.

The effectiveness people have never been exposed to that scale of change. They still sit, as they always have, looking thoughtfully at a piece of paper, and that thoughtful pose has been the same whether the piece of paper was produced on the Patent Paraffin Wax Letter Copying Machine (as favourably commented upon by HRH Prince Albert) or by a hallucinogenic copier fluid or by Xerox.

The absorbing issue in looking at the future of office automation is how it will affect the effectiveness people – not simply because they have barely been affected by technical change in the past, but because some big, big money is riding on the assumption that the advances of the 1980s will capture the effectiveness market.

Improving

What matters, runs the conventional wisdom, is not trimming 1.25 girls from the typing pool but improving the effectiveness of the effectiveness people.

One crucial difference between the groups is that effectiveness people are more influential than efficiency people. In the bad old days, efficiency people were told that technical change was about to hit them.

Now they are consulted collectively through their representatives about impending change but, with a few honourable exceptions, they are not consulted individually.

Effectiveness people would be consulted individually and they are capable of accelerating technical change by being enthusiastic or of deferring it, indefinitely, by pointing to so many variations and anomalies and special conditions that the sensible systems man will back away from the edge of the bottomless pit which would gobble up man-decades of programming effort.

It follows that automation will affect the effectiveness people only if they permit it. That conclusion is known in the trade as an evidence-free assertion, and it deserves to be qualified in two ways.

Obviously, it is possible for strong-willed top management to force new technology on effectiveness people, but it would be very difficult to ensure that it is used in the way that was planned.

Necessity

Obviously, in turn, some great economic upheaval could make automation a necessity so that, for instance, with travel to work impossible, we work from terminals in our homes.

If we ever reach that point all, alas, that we are likely to be doing in our homes is to grow vegetables in the window-box to achieve self-sufficiency.

If automation can come to the effectiveness people only if they want it, then they will want it only if it fits their beliefs about themselves and their work.

The effectiveness man has a set of values, which look like this:

1, he believes in status. He does not particularly want to work in an open plan office or to share a dining room with those of lower status (and he is not at all resentful that those of higher status should prefer to eat separately). He believes that his status should be mirrored by the status of his support team. He knows that under a job evaluation scheme the grade of a secretary ought to reflect the organisational position of her boss.

2, he expects, within reason, to have freedom of action; to organise his own day; to do things his own way. He will conform to any rules the organisation cares to lay down, but in those areas where there are no rules, he guards his freedom of action jealously.

3, he is loyal to the organisation, but his primary loyalty is to his own department. He knows that what is best for the organisation is not necessarily the same as what is best for his department and, if there is a conflict between the two, what is best for his department is what he fights for.

Unfair people – foreigners, perhaps – might say that these values of status, freedom and loyalty could be entitled "snobbery," "anarchy" and "secretiveness".

In extreme cases they might turn out that way, but they are values solidly at the centre of the UK office culture.

If this argument is solid and, if the effectiveness man can block any advance that does not fit his sense of values, which advances – if any – will he accept? By this stage, we have dropped the efficiency people, and we ought to go for brevity and avoid sexism and call the remaining group the EP, the effectiveness person (or people).

Messages

There are several techniques available for winging information up and down and across the organisation. All are based on the assumption that faster information is better information.

That, knows the effectiveness man, is not necessarily so.

Now, it is generally true that a few hours' delay is better than a few days delay, but that relationship does not hold good when we move down into differences between hours and minutes and seconds.

The effectiveness man knows that fast information encourages a fast shooting-from-the-hip response. In such shoot-outs the bullets fly in all directions.

The EP knows that it can be thoroughly dangerous to release information simultaneously to different levels of management. For instance, if the EP gets an electronic message that the number three Big Thumper has broken down, he can draw on his long experience to evaluate that message.

He knows there is a law of nature which says that the Big Thumper will sometimes be running and will sometimes be broken down, and he knows that by the time he gets the message people will be trying to fix it.

If that message gets flashed up to senior levels of management hooked into the information network, then it will be seen by those with no practical knowledge of those laws of nature which govern the running of the Big Thumper.

They may well contact the maintenance superintendent, the Thumping Shop superintendent and the Big Thumper foreman who ought to be out there getting it running again instead of wasting their time in electronic conversation.

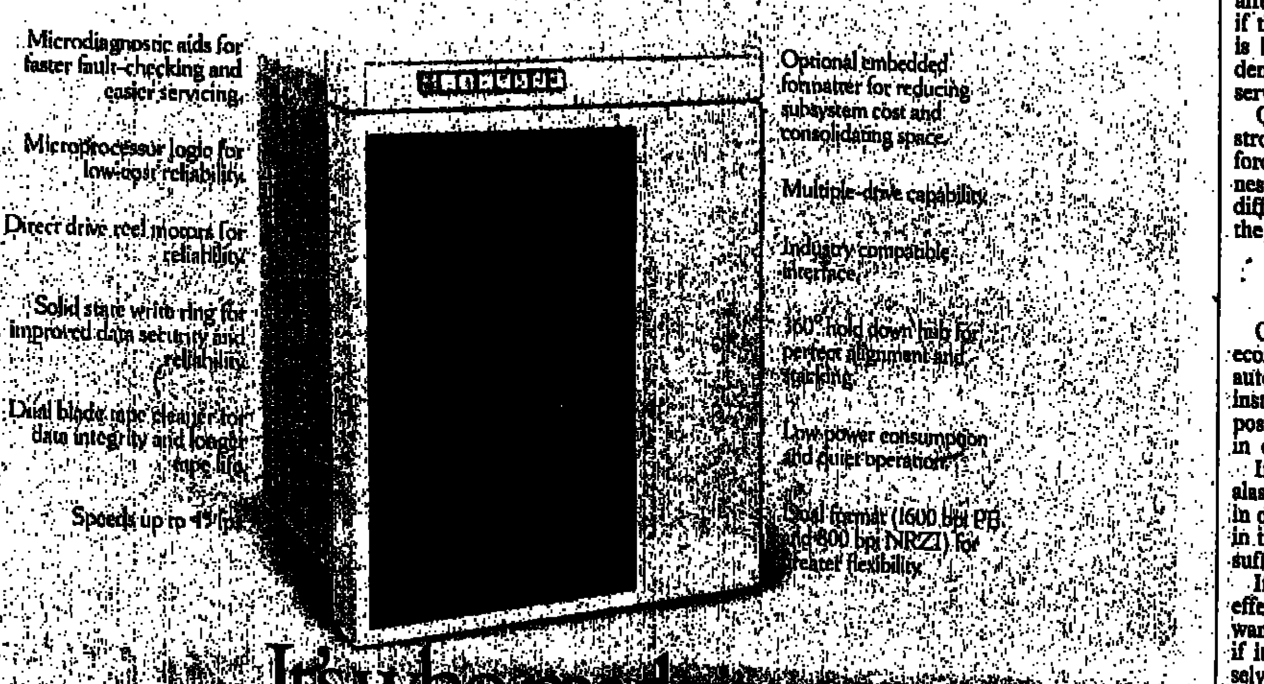
Filing

The EP might tolerate – occasionally even welcome – faster information coming up to him; but he is sure to try to block any development which would move information from his own people more quickly into the hands (or on to the screens) of those above him or of those in other departments.

It is easy to see a growth of electronic data retrieval, covering data in the public domain. There is a fair volume of neutral, uncontentious data within a company which

● Turn to page 27

It's not what it's got that makes it so different.



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FIRST PRIZE WINNER

A quiet revolution is going on in the UK's offices – that of automation. It could have far-reaching effects on the way we work, and on our cultural values.

In this the first of three articles, which was the winner of the Institute of Data Processing Management/Langton Award, JOHN FINNIE looks at the practical implications of office automation.

Finnie, who won £300, works for GKN Group Management Services in the West Midlands.

Will managers bypass their secretaries and use word processors?

● From page 26

could be tapped, and, if the economics are right, there will be a growing volume of information from external databanks which could be called up.

That use is bound to grow, but there are three main reasons why we are no more likely to have a paperless office than have a cashless society:

1, EPs like to doodle, scribble in the margin, underline. They like to put this piece of paper side by side with that piece of paper and compare them. Paging up information on a screen does not allow that natural way of working. Certainly they can press a button and a little girl will come running up from the printers in the basement, but that is hardly a paperless office.

2, everyone – well, almost everyone – reads more than they write. It is fairly easy to put every bit of text produced within the company into a databank, but it is wildly uneconomic to do that for everything that comes into the organisation. Unless some magical text scanner hovers into view, we either have to ship it off to some Third World typing pool (as some of the specialist databanks do) or settle for having to keep it in hard copy.

3, the problem of trying to decide what data belongs to the public domain will be acute. Most data which is currently held on electronic filing systems is discrete and complete and the limits on access to it can be defined now and for ever. If we try to move data from the EP's files into the public domain, then we run into major arguments about what should be seen by whom, when and how. Some would be released only over the EP's dead body, and some only if the EP could be sure that it was read in context and surrounded by personal explanations. The chances are that any EP, with a proper sense of self-protection, will keep reams and reams of information in his desk drawer out of the clutches of electronic filing.

Aids

Every so often in the Poughkeepsie Graduate School of Management Technology Review (or in its rivals) an article appears called, let us say, "Management Sciences – Quo Vadis?", which shakes around once more the question of why it is that managers rarely use linear programming or sensitivity analysis or Leontieff input-output matrices or whatever.

Usually the articles offer a morsel of *mea culpa*, admitting that maybe they, the experts, have failed to get their message across, but the main culprits are seen as the appalling innumeracy of managers and the lack of easy access to computer use.

Any day now, it is hinted, numerate managers will spring up from the cradle and computers will become as cheap as pencil sharpeners.

The reality is much different. The demand for computer-based decision-making techniques is minute. There are some decisions where mathematical steps are included to add a touch of respectability.

For instance, the capital expenditure decision rules might insist that a discounted cash flow calculation is needed, but that discounted cash flow calculation is a minor element in the decision. Beneath the calculation is a raft of assumptions and guesses and hunches about the future.

Certainly, you could call up a risk analysis program on the terminal, and tap in probabilities, but all that really shows – as many empirical studies have demonstrated – is that born optimists take optimistic decisions and born pessimists expect the worst.

Above the DCF calculation is a political process. Politics is not a term of abuse; it is simply the business of reconciling the interests of the shareholders and the customers and the lads on the shop floor and the managers.

Certainly, again, you could call up a multiple goal programming routine on the terminal, but that is not likely to displace the healthy creative muddle of human decision-making until an android first becomes chairman of ICI.

Improbable

It is highly improbable that the EP would use such systems willingly, wholly incredible that he would program his own. In part this is a matter of status, with the EP unwilling to reveal himself as struggling to construct something capable of running.

More importantly, it stems from the plain economic fact that the EP might be as well employed threading thick twine through twin needles as wasting his time figuring out which syntactical comma got dropped from which statement.

Those decision-making aids at least have the courtesy to acknowledge that the decisions are subtle and complex. There are other developments on the horizon which attempt to de-skill decision making.

These systems formalise precedents and work along the lines of "These were the variables affecting past decisions, these were the decisions, and this was the success rate on those past decisions. Please key in the new data against those variables, and kindly adopt the decision which will shortly appear on the screen."

That is a type of approach which has had a fair impact on consumer credit vetting in North America, and, in theory, it is an approach that could spread into other areas where decisions stem from precedents.

In practice it will not.

The EP will always claim that the variables which affect successive decisions are never the same, that the relative importance of each variable changes decision by decision, that each decision needs a keen, but unquantifiable, knowledge of human nature.

Self-justification or not, there is a fair amount of truth in those claims. Many decisions are fuzzy and ambiguous and born of hunch and best left that way.

It is perfectly easy to see the secretary shifting from a typewriter to a word processor, but we run up against the value barrier if we hope that the effectiveness man – here I must revert to sexism – will bypass the secretary and work the word processor himself.

This is not simply a matter of status or office caste, for there is also a gender imprint involved.

The video phone is nearer to SF than to current technology, but it seems to be attracting serious attention. If that serious attention extends to investing hard-earned money, then it ought to be stopped.

Of all the forms of communication, the video phone is the greatest threat to the EP.

At the bottom end of the threat scale is conventional mail. The EP times his opening of mail according to his mood and the origins of the envelope. He can skim the text or he can read it word-by-word.

The telephone is more threatening. Calls come randomly – some might be buffered, but insistent senior people can burst through the buffers. The call needs some immediate response.

That makes it altogether too hostile to the EP. Any attempt to introduce it will result in permanent "We regret the temporary loss of vision" signs on the screen.

But . . . . but, you splutter, it is outrageous to dismiss vast areas of new technology on the basis of a generalisation on EP values. But, you say, my brother-in-law's neighbour plays golf with a man who has only to point a laser beam at a filing cabinet and it will move silently on castors right up to his desk.

Obviously, there are examples of new technology at work, but if you look closely you will find these excesses only happen in:

1, Organisations which produce the new technology (since they must be able to offer at least one demonstration site).

2, Incredibly rich companies such as the oil multinationals – where the profits are so embarrassing that they will spend money on anything to reduce them.

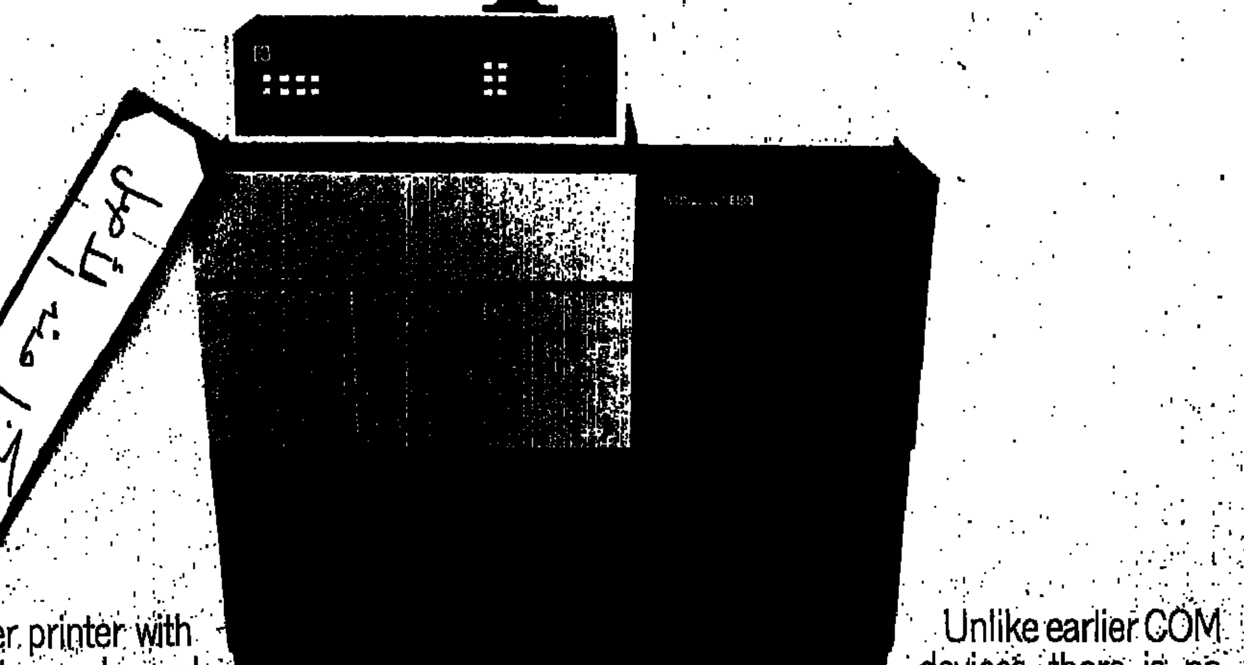
3, Organisations where there is a hobbyist (where the boss accedes to the latest outrageous request to stop the smell from the soldering iron burning the desk top).

4, Organisations in the grip of behavioural scientists or organisation development theorists or US parents, where an attempt is being made to break up the old cultural values. Values can be changed temporarily, but the laws of genetics show that everything eventually reverts to the mean.

In short, it could be worthwhile investing in companies which limit themselves to the efficiency market. In the effectiveness market, there could be money to be made if the systems are confined to the EP's area of control and are not linked to any other part of the organisation.

Where the product upsets the traditional values of the EP, then an investment is only to be recommended where the investor wants to enter an extreme form of holy orders and needs to achieve total poverty quickly.

From Kodak a laser printer.



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BOOK REVIEWS

Reviewed by Chris Youett

Spelling out the mysteries of the industry

The Penguin Dictionary of Computers, by Anthony Chandor with John Graham and Robin Williamson. 440pp. £1.95. Penguin Books Ltd (CW), 17 Grosvenor Gardens, London, SW1.

DO you know what a crippled leap-frog test is, or the difference between graceful degradation and growing old?

Probably not.

One of the biggest curses of DP is the number of words, phrases and acronyms that abound with abandon. Even to people who have been in the industry for 10 years there is still plenty to get confused about.

Of the many aids to the jargon, this is probably the best. The main virtue of the book is that it is manufacturer-independent: thus taking definitions that apply to the whole of DP as opposed to specialised meanings.

Some topics in it are dealt with in greater depth than others as the authors have recognised that plenty of the book's readers will be laymen. There are over 3,000 words, phrases and acronoyms in it; also short in-depth articles for the more technically minded on topics such as decision tables, Algol, remote testing and virtual storage.

However, it is in this aren that the book, by 1980 standards, falls down. There is little mention of chips or the latest technology such as bubble memories and charge coupled devices.

But at £1.95, this is a book you can afford to buy and throw away every time an update comes out.

All homes need one!

The New Penguin Dictionary of Electronics, by Carol Young. 618 pp. £1.95. Penguin Books Ltd (CW), 17 Grosvenor Gardens, London, SW1.

THIS book replaces the former Penguin Dictionary of Electronics and is primarily concerned with the words and terms used in electronic research and industry and in solid state theory and also contains terms used in the related fields of computers, communications and electrical engineering.

On the new terms, particularly the DP variety, the book gives a detailed description of each with diagrams where appropriate. Most of the text can be understood by anyone educated to GCE "O" Level standard.

The book is the best I have seen on the market for the whole field of electronics: every home should have one. It is worth every penny.

Benn's policy for coping with new technology

Tony Benn: Arguments for Socialism, edited by Chris Mullin. 206pp. £1.50. Penguin Books Ltd (CW), 17 Grosvenor Gardens, London, SW1.

TONY BENN – the very name rouses passions in most of us: he is either the man we love to hate or the man who stands at Keir Harie's right side, or at least a bit nearer than most in the Labour Party.

Yet despite what the popular Press writes about him, he is an enigma and at no time in his political career has he been nearer to getting the keys to 10 Downing Street than at present.

With Jim Callaghan probably about to go and Shirley Williams not an MP, he has to face only Dennis Healey and possibly Peter Shore and John Silkin.

When you read this book, you may find that you know surprisingly little about the "Pin-up of the looney Left".

Benn argues for a radical alternative to present mixed economy-type policies. The first five sections of the book are based on speeches, lectures and articles by Benn taken mainly from the past five years. The last section was taken from lengthy interviews by editor Chris Mullin.

Technology

Since becoming part of Labour's First XV, Benn has been closely involved with technology: he was Postmaster General in 1964, Minister of Technology (Mintech) in 1966, Minister of Power in 1969, Industry Minister and Minister of Posts and Telecommunications in 1974 and Energy Minister from 1975 to 1979.

Benn says the idea behind the National Enterprise Board was that financial aid to major firms should be linked to the objectives of planning agreements. The government would be able to use data from such agreements in planning its own strategy.

Benn offers a number of proposals for reforming State-owned industries. These are: Genuine worker participation in management, better relations between the public sector and consumers. He urges the public sector to find new ways of relating to the communities in which its operations are conducted, and says they must take fuller account of the supply industries which depend on them; the planning mechanisms of nationalised industries must relate with each other; there must be proper accountability to Parliament and not to civil servants or ministers; and public ownership should be more flexible, taking, for example, some parts of an industry or giving local authorities powers to take over firms.

Nationalisation

However, Benn does not appear to advocate renationalising those assets sold off by the present government.

Despite his conversion to the anti-EEC camp, he has consistently pointed out that membership of the Community allows commissioners to interfere with investment in firms such as ICL and Ferranti without reference to Parliament.

He claims the EEC is dedicated to creating a text-book free market economy which would mean the weakest going to the wall.

It is quite possible that firms like ICL, Ferranti and SPL would have gone under, had the UK been a member much earlier.

Benn rejects both Tory and Labour arguments that less/more State control is the panacea for all ills. He believes that technology has a great part to play in setting the people free.

While he admits that technology will create new organisations and new citizens, he believes that devices such as word processors and intelligent terminals could be used to bring decision making near to the ordinary people.

He calls for more open government and demands that people should be allowed to see private files on them, pointing out the increasing worldwide concern over centralised computer records that could be used for purposes other than that for which the data was gathered.

However, this has always been a problem: both Hitler and Stalin conducted their respective purges with manual filing systems and thousands of clerks. If Swansea is anything to go by, perhaps we are safe from a repressive government.

In the sixth part of the book, Benn rejects the Tory brand of monetarism which is incorrectly attributed to Dr Milton Friedman, as well as corporatism, and he backs social democracy, the UK product which, he says, has its roots in the Bible, the Peasants' Revolt, the Levellers, Tom Paine, Robert Owen and the Fabians.

This, he says, is based on self-discipline of full democratic control.

Challenge

Benn calls for the recycling of pension funds and oil revenues into the economy via the National Enterprise Board and the Scottish and Welsh development agencies.

He says the country must face the challenge of technology which places us in a dilemma: while it could mean fewer jobs, if more robots and computer assisted equipment are not installed, then UK industry could be so inefficient that mass unemployment would be a permanent feature of the economy.

The issue is not, he says, of whether we accept or reject technology but of how to distribute its benefits such as better working conditions and shorter working time.

He suggests that the people "freed" from the drudgery of work could be used for labour intensive jobs to clear up the environment and to help in the social services.

Benn calls for a new relation between workers and capital where trade unions would have a say in planning the economy and workers co-operatives would be encouraged.

However, he has a parting shot which everyone in DP must consider: How do we handle technology?

He points to the dangers of creating a technological priesthood and of failing to obtain adequate explanations.

We could end up with 1984.

Only history will tell whether Benn is right. No matter what you think of the man you should read his arguments. Despite the reputation, which I suspect he enjoys, Benn is very much a pragmatist and would, if elected, be able to modify policy rather than insist on dogmatism. After all, he had a very good teacher – Harold Wilson.

Brochure

RAPID RECALL has published a six-page brochure describing three of the DEC terminals it supplies. These are the VT100 video terminal, the LA120 Decwriter III 180 chps dot matrix printer and the LA34 Decwriter IV 30 chps dot matrix printer.

The key features, options and specifications of each terminal are given. The brochure is free from the address below.

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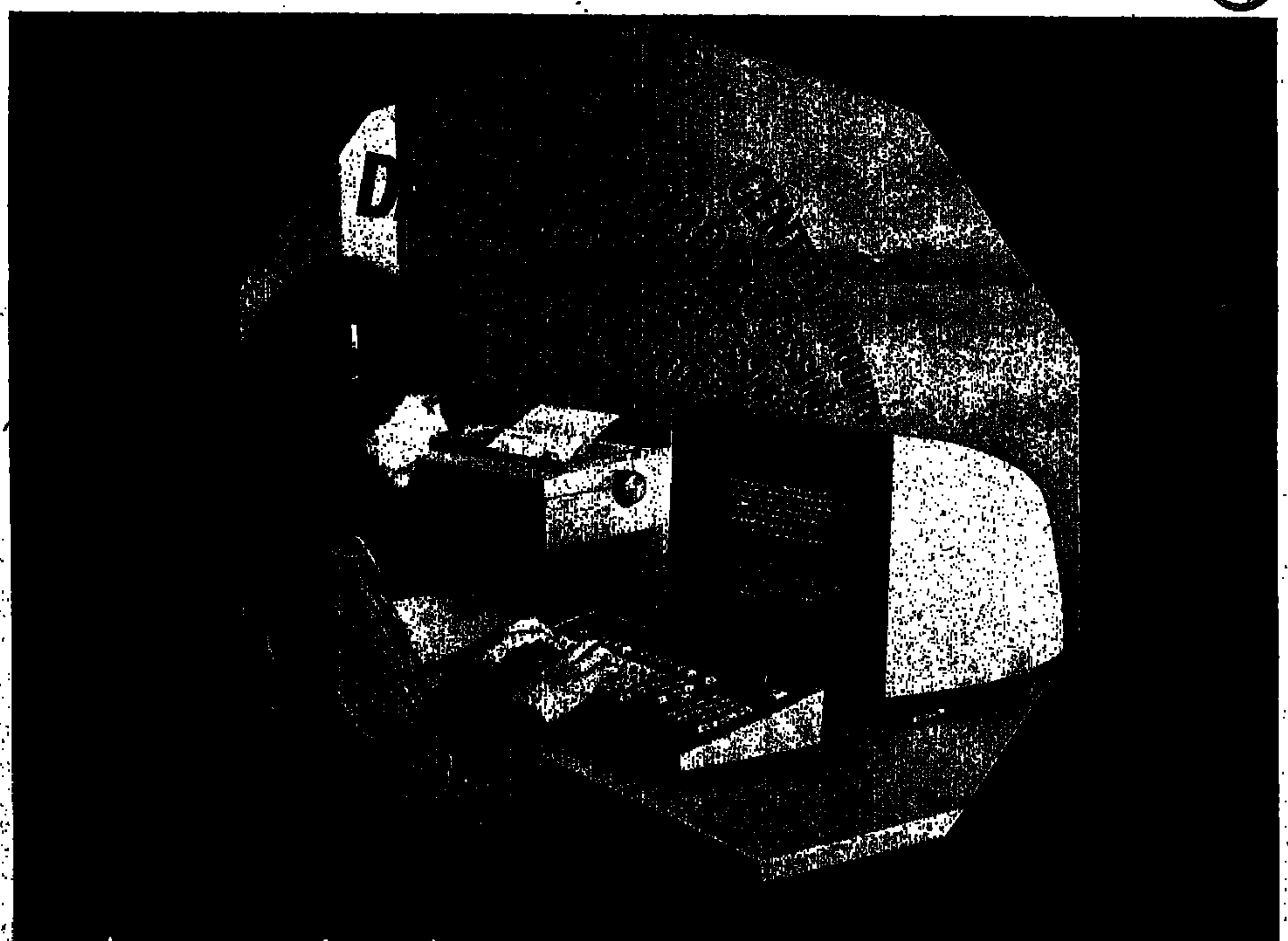

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Appointments

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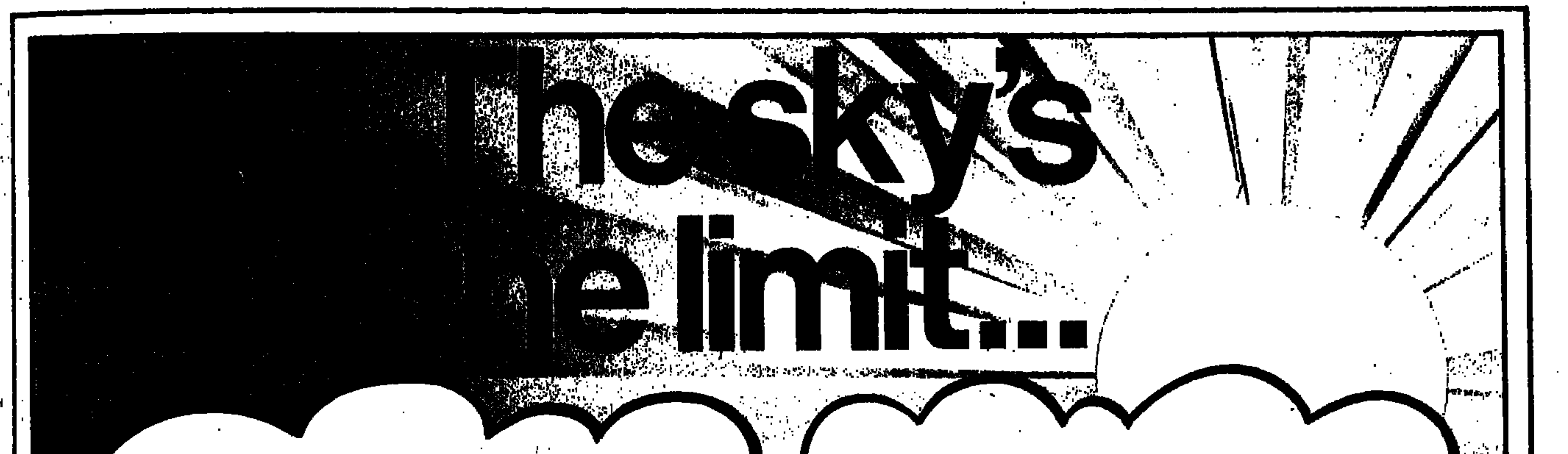

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PL/1 Vacancies

London and Home Counties **£5,500 to £11,000**

We have a number of positions ranging from Programmer to Project Leader with both small and large commercial companies. Locations are the CITY, BROMLEY, BRENTWOOD, CHATHAM, REDHILL, SLOUGH, ENFIELD, SOUTHALL, COCKFOSTERS, BRACKNELL, WATFORD, BEDFORD, ESHER, SWINDON AND CHELTENHAM. Ring Colston. CW37/2

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RPG II Vacancies

London and Home Counties **£6500-£8500 + Car**

If European travel and a car interest you, then several of our current list of 10 unique vacancies for RPG II Programmers and Analyst Programmers should appeal to you. Locations are the City, East London, Slough, Colchester, Sunbury and Brentwood. Many of the firms have or will have the latest IBM 34 and 38 installations. CW 37/4 Colston

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To £6,200 **Beds.**

If you have 2 yrs. + ICL 1900 or large 2900 experience, and would like to work in beautiful, rural surroundings, then this is the job for you. This well-known company requires operators and senior operators to work on a 3-shift system, Perks include CPS, 4 weeks' holidays, subsidised canteen and relocation expenses for the right person. CW 37/5 Tricia

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Salesmen with 'sparkle' Wanted

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COMPUTER WEEKLY

Building Societies Recruitment Feature

OCTOBER 2 ISSUE

The October 2 issue of Computer Weekly — Britain's largest circulated computer publication — will contain a special feature outlining the career opportunities and employment prospects for data processing personnel offered by Building Societies.

Computer Weekly is the only publication to regularly publish editorial features covering a variety of subjects linked to the job market scene. In view of the continuing shortage of qualified DP Personnel, the need to create a greater awareness amongst readers of the scope and future career prospects available is all important.

The combination of this special editorial feature and Computer Weekly's large penetration amongst analysts, programmers and operations staff, provides a first class recruitment advertisement platform.

Computer Weekly has the largest circulation in the specialist computer press (91,656 ABC July-Dec 1979). This has increased continually over the years to reflect the ever growing number of personnel in the computer industry. Additionally, and equally important, the newspaper has the highest number of individually requested copies of any weekly computer publication.

Advertisement rates are based on £16.00 per scc, and to be sure of your space reservation in this important issue, advanced reservations are advisable. Copy deadline is Friday, September 26th.

Contact: London :01-261 8028
Manchester :061-872 8861
Birmingham :021-356 4838

COMPUTER WEEKLY

THE NEWSPAPER COMPUTER PEOPLE RELY ON

Published by IPC Electrical-Electronics Press Limited
Dorset House, Stamford Street, London SE19LU

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SYSTEMS/ APPLICATIONS PROGRAMMER

An experienced Programmer is now required to write a wide variety of general, scientific and application programs, for running on a DEC 2060 under TOPS20, in the division of computing and statistics. The successful applicant will be a graduate or HNC with a minimum of two years' postgraduate experience and will need to have the self motivation to work unsupervised. Salary (under review) within £4659 to £6102 p.a. plus £398 p.a. London Weighting.

Application form and job description available from Mr. A. Mariner, 01-864 5311 Ext. 2685, quoting reference 109/2/4084. Closing date 30.9.80.

(2708)

UNIVERSITY COLLEGE, LONDON

SYSTEM PROGRAMMERS FOR LINKED COMPUTER SYSTEMS

required by the Computer Centre to join a team developing software for a service based on four linked GEC 4082 computers, providing predominantly keyboard access to a large number of staff and students.

The Centre is seeking programmers with an interest in operating system software, telecommunications or compiler maintenance. Salaries will be paid on academic related scales £4,402 to £7,410 or £6,052 to £8,769 (under review) plus London Allowance £740, according to previous experience and qualifications.

Applications including full c.v. and names of two referees should be sent to Computer Manager, University College London, Gower Street, London, WC1E 6BT, before September 26.

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To be responsible for complete control of all D.P. areas of a new installation for a group of companies engaged in the supply and distribution of timber and building supplies.

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The company offers first-class conditions of employment together with full relocation expenses where applicable.

REF: E1/1109

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Candidates will need to offer several years' data processing experience ideally including systems analysis and RPG II programming together with project leadership or supervisory skills. The ability to liaise effectively with all levels of management is an important attribute for this post.

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Minimum 3 years' IBM experience, substantial CICS experience

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Approximately 18 months' COBOL experience. Developing real time on-line systems

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Consultant: Hazel Foggin

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Knowledge of IBM hardware with VS1. Supervisory role. Support environment.

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Consultant: Roger Carr

Interviews any time between 8 a.m.-8.30 p.m. Evenings and Weekends by appointment. Reverse charge call accepted. Write — Blackwood Associates, Freepost, Birmingham B2 4BR.

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WORCESTERSHIRE

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The working environment is exceptionally good and the commitment to development will create further career opportunities.

Male or female candidates should contact Patrick Convey quoting ref. no. CW 283.

CPC

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(2694)

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(2694)

Computer Manager

Cardiff c. £10,000

This challenging post is created by the installation of a Honeywell L64/DPS2 in the Membership Records Department of the Royal College of Nursing. The College is both the professional organisation and trade union for nurses, with a current membership in excess of 170,000 and growing. Computerisation of membership records and subscriptions is the initial and major task, to be followed by the provision of an in-house service to other departments of the College. The computer will use a network of terminals in Cardiff and London and candidates should have a sound knowledge of communications and database techniques.

For further details and an application form, telephone or write to the Personnel Officer, Royal College of Nursing, Henrietta Place, London W1M 0AB. Tel: 01-580 2646

RCN
Royal College of Nursing

(2697)

£15,000 Reward

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Informatics will be interviewing in London and Manchester for positions in the USA during the week of September 22, 1980. To arrange a confidential expense paid interview send resume immediately or telephone Ms. Mary Castillo at our London Office (01-405-8546). Reverse charges accepted.

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(2632)

SENIOR SYSTEMS ANALYST/PROGRAMMER

(Thames Valley Area)

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The successful candidate will have had 3-5 years experience in mainly interactive systems with good all round commercial experience and now be ready to meet the challenge of a management position. The ability to programme COBOL and basic languages and communicate with all levels of staff is essential. You will report directly to the Managing Director and the immediate job is to take total responsibility for the Data General Mini computer installation including implementing the usual commercial systems for a first time user and future development.

Salary to £8 000. There is a good contributory pension and life assurance scheme in operation.

This is an excellent opportunity to join a friendly but vigorous company with good career prospects.

Please contact Personnel Manager, Manley Ratcliffe Ltd., Tower Road, Berinsfield, Oxford, for application form.

(2654)

If your job's become a dead end, we'll bring you back to life.

A dead end job doesn't reward your hard work.

And, perhaps worst of all, it can turn you into a dead end person.

As one of Britain's most successful financial institutions, spectacular growth means there are more opportunities to join our elite team of Sales Associates. You'll deal with a wide product range which helps people with their future financial security. You'll receive top class training and the backing of the finest administration.

Working for Yourself

At Hambro Life, you'll be self-employed. So your rewards are directly related to your efforts. Naturally, it takes ambition, self-motivation and drive to respond to this challenge; but for once, you'll be paid what you're worth.

No Sales Experience Necessary

How much will you earn? It's up to you. Last year over 300 of our Sales Associates earned in excess of £14,000. And many of them had no previous selling experience. Far more important than age, sex and background, and even education, are the qualities of determination, drive and enthusiasm.

If you think you could succeed as a Sales Associates, ring:

For London and the South East,
Peter Stoner 01-686 0991.

For Liverpool and the North,
John Rees 051-236 7536.

For Birmingham and the Midlands,
Maurice Howes 021-643 2351.

For Bristol and the West,
Jeff Burt 0272 39710

Hambro Life

(2650)

UNIVERSITY COLLEGE, LONDON

SYSTEM PROGRAMMERS FOR LINKED COMPUTER SYSTEMS

required by the Computer Centre to join a team developing software for a service based on four linked GEC 4082 computers, providing predominantly keyboard access to a large number of staff and students.

The Centre is seeking programmers with an interest in operating system software, telecommunications or compiler maintenance. Salaries will be paid on academic related scales £4,402 to £7,410 or £5,052 to £8,769 (under review) plus London Allowance £740, according to previous experience and qualifications.

Applications including full c.v. and names of two referees should be sent to Computer Manager, University College, London, Gower Street, London, WC1E 6BT, before September 26.

(2609)

SYSTEM SUPPORT EXECUTIVES

£10,000 : 2-litre Car

Training in Europe and California

A major Systems manufacturer with tremendous growth record and potential within UK market is offering tremendous opportunities to DP professionals looking for a move up.

In recent years they have established themselves as a leading supplier of Superior DDP/Transaction Process/Mini Computer Systems.

This is your opportunity to benefit from their reputation.

If you have or are looking for sales support experience, then call now! (2700) (Ref. ME810)

AB EXECUTIVE
Weybridge (0932) 41321

SALESMEN
Did you Earn over 30K Last Year
Two of our Clients Current Sales Force did!

SELLING TERMINALS AND COMMUNICATIONS SYSTEMS — LONDON & HOME COUNTIES

If your background includes sales experience in small business systems or IBM 3270 replacement system, your successful application will take you to the States for extensive training, providing you with the opportunity to earn on quote minimum of 16K.

The company, who are a large and profitable multi-national are restructuring their sales and marketing team to launch a vigorous sales campaign into the UK market.

They have an excellent existing installed base, requiring enhancement coupled with a powerful range of equipment which is destined to become a market leader.

For an immediate interview or discussion about an outstanding opportunity. Telephone Mr. Owen Hill. Ref: ODH 14, London Office.

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COMPUTER AND PROFESSIONAL RECRUITMENT CONSULTANTS

INSIGHT MARKETING & PERSONNEL CONSULTANTS LIMITED

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North—Austin House, Charlotte Street, Manchester 1. Tel: 061-236 7026

International—Walden House, 32-33 Marylebone High Street, London W1M 3PE. Tel: 01-486 7938

Ireland—20 Upper Fitzwilliam Street, Dublin 2. Tel: 0001 766387

UNIVERSITY OF BRISTOL
COMPUTER CENTRE

USER SUPPORT MANAGER

Applications are invited from suitably qualified and experienced candidates to take charge of the User Support Group within the Computer Centre. The group is responsible for providing advisory services to users of a wide range of facilities within a modern networking environment. The principal local facility is a Honeywell MULTICS system and significant use is made of other systems within the South West Universities Computer Network and at ULCC. Other facilities on campus include a PRIME 400, a GEC 4085 and a variety of PDP-11 systems.

Candidates for this post should possess managerial and programming experience, preferably gained in a scientific or educational environment.

The salary scale for the appointment will be £11,165 to £13,980.

Further particulars may be obtained from the Registrar and Secretary, Senate House, Bristol BS8 1TH, to whom applications should be submitted by 30th September 1980. Please quote reference EB. (2668)

UNIVERSITY OF DURHAM

COMPUTING ASSISTANT

Applications are invited for a COMPUTING ASSISTANT in the Department of Economics. Applicants must have experience in writing computer programmes, and in handling large sets of data. The successful candidate will be required to assist members of the department in their research, and to provide advice to students using computer facilities. Knowledge of economics is not required.

Systems Analyst/Senior Systems Analyst

£6,000-£9,000 **NEAR COLCHESTER**

A major International company with the latest IBM DOS/VSE CICS T/P DL1 installation is keen to recruit systems analysts (with a programming background) at various levels to work on brand-new financial projects. The company offers excellent perks including flexitime, non-CPS, a concessionary rate mortgage assistance, and relocation expenses to this beautiful part of Essex. All you Programmer/Analysts apply now! CW37/1 Michael.

PL/1 Vacancies

London and Home Counties **£5,500 to £11,000**

We have a number of positions ranging from Programmer to Project Leader with both small and large commercial companies. Locations are the CITY, BROMLEY, BRENTWOOD, CHATHAM, REDHILL, SLOUGH, ENFIELD, SOUTHALL, COCKFOSTERS, BRACKNELL, WATFORD, BEDFORD, ESHER, SWINDON AND CHELTENHAM. Ring Colston. CW37/2

Basic Programmers

S.E. England **£6,000-£9,500**

I bet you never knew how popular you were! We now have over 15 registered vacancies for BASIC and BASIC + programmers. Opportunities exist in the City, S.E.1, Brentford, Harlow, Pinner and Maidenhead for people with 1½ years' or more experience. Career growth is assured and most offer very attractive perks. CW37/3 Michael

RPG II Vacancies

London and Home Counties **£6500-£8500 + Car**

If European travel and a car interest you, then several of our current list of 10 unique vacancies for RPG II Programmers and Analyst Programmers should appeal to you. Locations are the City, East London, Slough, Colchester, Sunbury and Brentwood. Many of the firms have or will have the latest IBM 34 and 38 installations. CW 37/4 Colston

Operators/Senior Operators

To £6,200 **Beds.**

If you have 2 yrs. + ICL 1900 or large 2900 experience, and would like to work in beautiful, rural surroundings, then this is the job for you. This well-known company requires operators and senior operators to work on a 3-shift system. Perks include CPS, 4 weeks' holidays, subsidised canteen and relocation expenses for the right person. CW 37/5 Tricia

Operations Analyst

c. £8,000 **Middx.**

A large N.W. Middx. company requires an Operations Analyst with a strong IBM Large machine background. Good IBM utilities knowledge is essential, and at least 3 years' experience of JCL writing. CMS is an advantage. If this sounds like you, then ring us now. CW 37/6 Tricia

Salesmen with 'sparkle' Wanted

N. LONDON AREAS & HOME COUNTIES **QE £16K + CAR**

At last a unique opportunity to join one of the world's foremost largest and successful computer manufacturers! They have only very recently announced the latest in their white-hot technology range of multi processing systems selling in the £30K to £10K bracket. Really take off and make a career out of your 2 years' plus selling ability. Ring Michael for details. CW 37/7 Michael

Consultants

Central London **£10,000 to £16,000**

4 large, well-established consultancies wish to recruit systems people with all-round experience on the latest equipment and the right personality to deal with clients who require first-rate service. Technical Communications Consultants are also required where in-depth implementation experience of IBM or DEC latest ranges are essential. Excellent fringe benefits and prospects. CW 37/8 Michael

Contract An/Programmers

To £450 p.w.

DMC REALITY	PROG.	SOMERSET	3 months
ICL 2900	IDMS	KENT	3 months
ICL 2900	VME/B COBOL	LANCS.	3 months
ICL 1900/2900	MTS DME	SURREY	3 months
PDP	DIBOL RT11	HERTS.	3 months
IBM	SYSTS. PROG. CICS DOS	SURREY	6 months
IBM	PL1 IMS OS	BELGIUM	4 months
H'WELL	BASIC IBM FORTRAN	HOLLAND	6 months

Contact: IRENE FOR CONTRACT DETAILS

UCA Recruitment Consultants
Universal Computer Associates Limited
Data Express House,
Prospect Place, London W4 3BR.
01-995 3883 (01-958 6138 Evenings)

Technical/Scientific

PARAMIN STAINES/LUTON

To £11,000
Car Allowance
Private Medical Scheme

PARAMIN was formed in 1974. To date they have offices in the USA, Europe and the UK, with several major projects to their credit in these countries, as well as Canada and Japan. PARAMIN UK are currently seeking experienced personnel to progress with the company into the 80s, working on extremely interesting projects.

They require individuals from a scientific/technical background with a degree in Computer Science and at least two years' Coral Pascal Fortran or RT2 on minis or micro. You should be familiar with one or more of the following areas: REAL TIME SYSTEMS, BASIC SOFTWARE, ROBOTICS, OPERATING SYSTEMS, A.T.E., PROCESS CONTROL and, in total, you should have a minimum of five years' experience in computing.

PARAMIN has a very successful track record; this has been achieved through sound principles and standards. Develop your career with PARAMIN.

For further information please contact Mike or Eddie Howard or just complete the coupon.

Mini Computer Software Development

W. LONDON/BERKSHIRE — TO £11,000

We are recruiting on behalf of an established American company who produce high performance 32 BIT mini computer systems for the TRANSACTION PROCESSING MARKET. With many new exciting developments taking place at their Berkshire H.Q., they have a requirement for an additional Designer/Programmer to work on an advanced database management system.

The successful applicant will join a small professional project team which has total responsibility for the development of the product. Ideally he or she should have 3-4 years D.P. experience in Assembler programming and systems design. This Company is highly recommended and offers a promising and rewarding future to those portraying dedication and enthusiasm. All the normal benefits associated with a company of this status can be expected.

For further information please contact Eddie or Mike Howard or just complete the coupon.

Consultants — Systems Analysts

LONDON & H.C. — **SALARY TO to £16,000**

A highly respected Systems Consultancy based in Central London require business minded Systems Analysts and Consultants to maintain and develop new business. You will be involved with many interesting aspects of this company's business, i.e. client proposals, presentation, on site development and overseeing work to final completion.

It is important that applicants are adaptable, articulate, neat in presentation and possess a high degree of technical competence. Mobility is also a requirement and opportunities for foreign travel are available. This is a highly reputable organisation implementing top level management for many years.

For further information please contact Eddie or Mike Howard or just complete the coupon.

COBOL — ASSEMBLER

Edmund Howard & Partners have been established for some years, successfully recruiting all levels of personnel for a wide selection of Blue Chip Companies throughout the U.K. and Europe.

Right now we have some key appointments requiring different levels of experience in user consultancy and financial environments. If your experience covers any of the above languages we would be very pleased to hear from you, we wont waste your time.

For further information please contact Eddie or Mike Howard or just complete the coupon.

DEC IBM MODCOMP DG

UK & Holland

SYSTEMS TECHNOLOGY are a young, dynamic systems house dedicated to the design and development of complex computer systems. Based in Central London, with clients throughout the south of England and parts of Europe, they plan to open an office in Holland in the near future. They are currently undergoing a planned phase of growth and wish to attract young enthusiastic individuals with a degree or equivalent in a numerate discipline offering 1 - 3 years experience in any of the following areas.

- COMMUNICATIONS
- PROCESS CONTROL
- BASIC SOFTWARE
- REAL TIME SYSTEMS
- SCIENTIFIC PROGRAMMING

This is an excellent time to team up with a highly successful company who are still young enough to recognise and appreciate dedication and determination. Career opportunities are excellent, offering variety and scope on projects in the U.K. and Europe.

For further information please contact Eddie or Mike Howard or just complete the coupon.

Software Managers

HAMPSHIRE

Our Client is part of a multi-national organisation employing more than 50,000 personnel in over 50 countries and is a leading figure in the development of Industrial Systems and Radar Simulation. Presently they require two Software Managers, one in the Industrial Systems Group and the other in Radar Simulation.

THE INDUSTRIAL SYSTEMS GROUP is mainly concerned with measurement and control systems for energy management in such areas as power generation, process plant, and engine test bringing together systems design, applications software project engineering and contract management expertise required for data acquisition systems.

RADAR SIMULATION UNIT is concerned with the development of digital Naval and Marine simulators ranging from large trainers employing other navigational aids to compact minimal configuration trainers.

It is imperative that candidates have sound experience in Man Management along with expertise in most aspects of Real Time Software design and development.

For further information please contact Mike or Eddie Howard or just complete the coupon.

UK & and Overseas

Systems Programmers Technical Authors

Here is an excellent opportunity for technically minded individuals with an interest in either systems programming or technical writing. A leading computer manufacturer is now recruiting additional personnel to meet the demands of a rapidly expanding section of the industry.

PROGRAMMERS with a minimum of two years' technical experience will be involved in a variety of projects ranging from software design and development through to final testing and implementation prior to general release.

TECHNICAL AUTHORS with some previous experience in the production of technical specifications and software manuals will be required to work in close association with both software design and product test teams. Applicants should be prepared to tackle and solve all manner of problems and maintain a high standard of documentation at every stage. Rapid career advancement is envisaged for those with the right background, qualities and experience.

For further information please contact Mike or Eddie Howard or just complete the coupon.

NAME
ADDRESS
TEL (Home) TEL (Work)
POSITION APPLIED FOR

Edmund Howard & Partners

5 Brighton Road, Surbiton, Surrey, England. Tel - 01 399 9183

Section Leaders

Software Engineering

The skills of the software engineer lie at the heart of todays avionics systems. Not only do they depend upon software for much of their intelligence and functioning, but the extensive use of microprocessors and digital signal techniques means that the modern avionics system is largely designed by the software engineer.

At Borehamwood, Marconi Avionics has developed an unrivalled experience in this field. And with this, our software engineering teams have gained a unique talent.

To be a man or woman heading one of these teams means to lead a group of specialists involved in all aspects of an avionics project, from inception through to the delivery of the completed system.

It also means that you will have had a minimum of five years experience of software engineering which, in addition to giving you a detailed knowledge of both high and low level languages, will have made you familiar with modern design techniques. You will also be able to co-ordinate the efforts of a team of software specialists during all stages of a complex project.

For further details, please write to, or telephone, Chris Hill, Marconi Avionics Limited, Elstree Way, Borehamwood, Herts. Telephone 01-953 2030 extn 3449. Please quote reference MA 80/45.

(2837)

MARCONI AVIONICS
A GEC-Marconi Electronics Company

WEST MIDLANDS

PROJECT MANAGER and PROGRAMMING TEAM LEADERS

CIRCA £8,500 plus COMPANY CAR

Our client is a leading minicomputer turnkey systems house, seeking to expand their team of professional staff. The company market a range of minicomputer equipment, from a highly reputable source, and provide a full applications development service. These positions offer a real challenge to play a decisive part in the growth of the company.

As PROJECT MANAGER, you would have responsibility for a customer's development, from initial feasibility stage, through to implementation. Extensive systems experience in the commercial, financial or production areas will be required, plus the ability to control a project and to deal directly and competently with clients.

As PROGRAMMING TEAM LEADER you should be able to demonstrate a background in minicomputers, preferably with experience of DEC PDP operating systems and languages. Projects are carried out on a turnkey basis, and you would be totally involved from initial estimating up to installation and handover to your client and would take responsibility for the success and profitability of projects.

General conditions of employment include six-monthly salary reviews, service awards, pension, sickness and BUPA schemes, five weeks' holiday and provision of a company car.

To discuss these opportunities please contact Mike Hessian, ref. CW 284.

CPC
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18th Floor, The Rotunda
Birmingham B2 4PA
021-632 6848

(2660)

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All classified copy should reach our offices no later than 3.30 p.m. on the Monday preceding Thursday's publication.
If complete artwork is supplied 11 a.m. on a Tuesday.
Ring: Roy Kelly for further details on 01-261 8016.

Two Key Appointments — Computers
Training in the U.S.A.

The company has a good record of selling into the University, research establishments, public utilities markets, and they are now preparing to expand and attack the commercial market sector.

They will recruit two experienced, professional salesmen to cover territories North and South of Central London and the Home Counties.

Training with this large and profitable International organisation will take place at their Headquarters in the USA.

Salary and income plan is by negotiation.

London Office for an immediate interview. Quoting Ref. ODH 12.

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INSIGHT MARKETING & PERSONNEL CONSULTANTS LIMITED
London—72-75 Marylebone High Street, London W1M 4AJ. Tel: 01-486 5644
North—Austin House, Charlotte Street, Manchester 1. Tel: 061-236 7026
International—Walden House, 32-33 Marylebone High Street, London W1M 3PE. Tel: 01-486 7938
Ireland—20 Upper Fitzwilliam Street, Dublin 2. Tel: 0001 766387

(2687)

IMI titanium

Systems Analyst/ Programmer

South Wales.

IMI Titanium, Western Europe's largest manufacturer of titanium and titanium alloys, has a vacancy for a Systems Analyst/Programmer in the Systems Development Section of its Waunarlwydd Plant, near Swansea.

At present the Section uses computers for a range of applications including stock evaluation, order processing and invoicing, the preparation of wages and preparation of product costs/trading information. The Section is also involved in the development of programmes for new applications and the person appointed will be expected to lead this work.

Candidates, male or female, should have a degree in Computer Studies or an associated Discipline, and a knowledge of COBOL as used in industrial applications. Candidates should also have systems analysis experience in manufacturing industry.

Assistance with relocation costs may be given in appropriate circumstances.

Applications, quoting reference number T20/80, should be forwarded to Mr J.A.C. Goodyer, Personnel Manager, IMI Titanium, P.O. Box 216, Witton, Birmingham B6 7BA.

IMI (2696)

COMPUTER OPERATOR

The Computing Laboratory of the National Institute for Medical Research requires a computer operator for the laboratory's DEC 2040 and Hewlett Packard 3000 computers. The DEC 2040 was installed in April 1980 and will become the main machine used in the Institute. The operator will be responsible for all normal operator's duties and will also be involved in advising users on the operations aspects of the machine.

The academic qualifications for the post are normally five "O" levels or equivalent but applicants with suitable experience will be considered. The successful applicant will be directly responsible to the Computer Manager. The post is at Senior Data Processor grade and the salary is in the range of £4426-£5212 plus £424 London Weighting.

The Institute offers excellent working conditions in pleasant rural surroundings, good social and sports facilities and also the use of the Staff Restaurant. Please apply for an application form by telephoning 01-959 3666, extension 221 or write to Mrs. P. A. Wilde, Personnel Officer, N.I.M.R., The Ridgeway, Mill Hill, London NW7 1AA.

NEW COMPANY, PRODUCTS OPPORTUNITIES

FIELD SERVICE

THE COMPANY
The world's fastest growing mini manufacturer offers total system involvement (H/W + S/W) to experienced field engineers. Join a new service team working on powerful machines offering unique alternatives to traditional computing problems.

NEW PRODUCTS
One of the world's best-known mini manufacturers have just introduced an important new range of products. This launch gives further impetus and engineering career options to a company with an enviable growth and security record.

NEW OPPORTUNITIES
Growth and more growth is the principal reason for two new offices being opened by this major mini manufacturer. Their reputation and future expansion depend on experienced field engineers able to accept the challenge offered by one of the "big four" names in minis.

Locations: S/W, West, Home Counties, London.
Basic salaries — £8,000 + 2-litre car + benefits.
Consultant: Ref: EK 2056.

A. B. EXECUTIVE (KINGSTON) LTD
01-549 6441

SELLING MINI COMPUTERS

circa £20,000 + car

If you've got what it takes— our client can take everything you've got!

The demand for computer based Accounting and Management Information systems is continuing to grow rapidly. Computer systems are now no longer just the perogative of the big battalions. With the introduction of the mini computer, small to medium sized companies can now enjoy many of the benefits that come from faster access to accounting and other information. In fact, it's because these benefits are so real that the market and in particular our clients share is growing so dramatically.

Our client who is London based, and fastly becoming a market leader in the mini computer/financial systems field need three more sales executives to exploit this growing demand.

Ideally, you'll be from a computer environment with a strong commercial or financial background or have experience of selling to financial management. Thorough training will be given so you'll come to know the possibilities of the equipment backwards. And you won't be going in cold because our client is backing the exciting new launch of a new mini computer with a heavy advertising campaign in both the computer and financial press, as well as first class sales support including highly professional customer training facilities.

Mind you – this is a tough competitive business and that should give you a pretty good idea of the calibre of people our client is looking for. But with this demanding job you'll find the rewards amply match the achievement.

Basic salary ranges between £7,500 – £8,500 (Guarantees negotiable to c12K) and there's a commission scheme that makes the total package doubly interesting. Top people can earn well in excess of £17,000 a year. There's also a company car and the usual range of company fringe benefits.

CLIENT ADVISORS

Support £8,750 + car

Your job will be to liaise with the client from the time the equipment is being installed to ensure a smooth installation/implementation and hand over at which point the client will become part of the individuals client base.

Thorough training will be given on all the equipment with the possibility – if you show promise – of being able to move onto the sales side after a year.

You're most likely to have a strong financial or commercial background as most of the clients you'll be dealing with will be accountants, or commercial directors. Some experience of computer based management accounting systems would also be useful.

Basic starting salary is c£8,750 and there's a company car. This is an outstanding opportunity to break into a highly competitive business.

Think you could handle it? – then ring David Wilkinson, Consultant on 01-486 5644 or write to him at the London address below.

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Recruitment LOGISTIX in Informatics

PROGRAMMING & DESIGN CONSULTANTS

Benelux: Salary to £22K

A renowned International supplier of IBM compatible systems and software has requested LOGISTIX to identify and recruit several Programming and Design Consultants for its European Headquarters. Suitable candidates must offer a minimum of five years' combined experience in IBM programming and systems analysis/design. Programming languages should ideally include either COBOL or PL-1, whilst applications involvement (of greater importance) must have been in the areas of Merchant/Retail Banking, Foreign Exchange Control, Production Control System and Oil/Exploration Seismic Data Analysis. It is envisaged that all candidates will have been actively involved in the design and implementation of at least two on-line multi-user systems in the above applications areas. Candidates must also have reasonable fluency in either French or German. Appropriate language courses can be arranged.

Ref: L/37/A

OFFICE AUTOMATION

Greater London: Salary to £10K

A market leader in the areas of office automation and information science technology has an urgent requirement for Systems Programmers. Suitable candidates will be graduates with a minimum of two years' Assembler or Pascal programming experience. Those who have developed a mini-computer or micro-processor Operating System or who have had recent exposure to SNA will certainly be attractive to our client. You will work as a member of a small project team developing State-of-the-Art Software with particular emphasis on electronic mailing, text and word processing. As well as excellent career prospects your financial benefits will exceed those paid by most other comparable companies.

Ref: L/37/B

MINI SOFTWARE DEVELOPMENT

N. Home Counties: Salary to £10K

Development Programmers offering a minimum of 18 months' Basic or Assembler on any mini-computer or micro-processor are urgently required for our clients' Research and Development Headquarters. The Company is a market-leading manufacturer of 16-bit mini-computers with a well-established and expanding client base in both the scientific and commercial markets. With a wide range of in-house hardware, unrivalled development facilities are available for ambitious, career-minded individuals. The salary and excellent range of benefits provided reflects not only the success of the Company but also the premium attached to recruiting top calibre professionals.

Ref: L/37/C

SYSTEMS CONSULTANTS

London: Salary to £13K

Our client, a leading International Programming and Systems House based in Central London requires additional project team specialists. These positions will appeal to candidates who enjoy developing customers' systems and solving related business problems. Suitable candidates will be graduates with a minimum of two years' programming experience on any commercial machine whilst a knowledge of both high-level and low-level languages will be a distinct advantage. If you have designed at least one complete on-line system or have had project management responsibility then you will be considered for a more senior position.

Ref: L/37/D

SCIENTIFIC PROGRAMMERS

West Germany: Salary to £18K

A leading Continental Systems supplier is further expanding its project teams involved in the areas of Image Processing and Graphics, Operation Research and Modelling. All Applications Programmers must offer both in-depth FORTRAN and ASSEMBLER Programming experience in a real-time mini-computer environment. Systems Programmers should offer experience in the development and implementation of compilers, operating systems and basic utilities. A feature of all these positions is the opportunity for European travel to the clients' other sites.

Ref: L/37/E

OIL & EXPLORATION SYSTEMS

Central London: Salary to £12K

A "household name" Company participating in oil production and exploration activities on a global basis seeks additional project team members for its Central London installation. The Company currently runs IBM mainframes with non-homogenous mini-computers in an on-line and stand-alone capacity. Applications Programmers and Systems Analysts should offer commercial experience in a T.P. monitor or DBMS environment. More important than specific programming langauges used are the applications areas in which candidates have previously worked. Programmers and Analysts will be considered to have relevant skills if they have programmed or designed in the areas of: Sales forecasting/budgetary applications, seismic and cartographic data analysis, production and materials control and spare parts/order scheduling. Salaries and fringe benefits are exemplary and will appeal to career orientated professionals.

Ref: L/37/F

GRADUATE PASCAL PROGRAMMERS

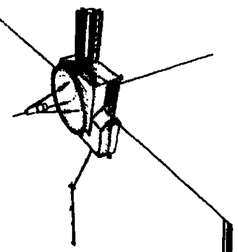
Inner/Greater London: Salary to £7.5K

Our client, a Software Development Division of a highly respected Systems Supplier is seeking recent graduates (B.Sc. or M.Sc.) to join a small project team developing a PASCAL Compiler for micro-processor based products. Candidates should ideally already possess an in-depth practical knowledge of PASCAL utilities. Compiler development expertise gained in an academic or manufacturer's environment is therefore a considerable plus point. In addition to being a member of a very skilled and innovative team, there will be ample opportunity for business visits both to U.S.A. and Continental Europe. Interviews will take place in mid-September — early applications are recommended.

Ref: L/37/G

Logistix, 10 Grenville Place London SW7 4RW

01-373 3063 LOGISTIX **Telex: 28800**



Science Systems

SCIENCE SYSTEMS is a 'hardware independent' systems house, working in a broad spectrum of scientific and technical fields both in the UK and Europe.

SCIENCE SYSTEMS is currently expanding its complement of professional personnel to work on projects ranging from avionics to war gaming.

We are seeking professional:

PROJECT MANAGERS	**circa £12,500**
SYSTEMS DESIGNERS	**circa £10,500**
ANALYST PROGRAMMERS	**circa £9,000**
PROGRAMMERS	**circa £8,000**

Who possess experience of:

DEC PDP 11 series hardware, using either MACRO 11 or CORAL 66

In addition to the salaries quoted SCIENCE SYSTEMS, as part of a multimillion pound group, offer an exceptional range of benefits together with definable career paths.

Contact Derek Ashley/Bob Mumford at:
SCIENCE SYSTEMS LIMITED,
60, KINGS ROAD,
LONDON SW3 4UD.
01-581 1481

(2859)

UNIVERSITY OF SALFORD
COMPUTING LABORATORY

Senior Computing Officer/ Computing Officer

A Ferranti Brand special project for three years has been established to produce a method of transferring files between unlike machines using the recently defined Job Transfer Protocol standard. Implementations may be produced for PRIME and ICL machines. Experience with standard FORTRAN essential. Communications or general systems experience desirable. Salary according to ability, age and qualifications on the Other Related Grades scale of £8477-(10 484 or the Other Related Grade 1A scale of £5052-18769 (under review) U.S.S. Superannuation.

Further particulars and application forms may be obtained from The Registrar, University of Salford, Salford M5 4WT to whom completed applications should be returned by 30 September 1980 quoting reference number CL/78/EW.

(2651)

UNIVERSITY COLLEGE LONDON

Lectureship in Computer Science

Applications invited for a permanent LECTURESHIP in the Department of Computer Science. The successful applicant will have interests in one or more of the following fields –

Systems Programming, Operating Systems, Microprocessors. Experience with Digital Electronics would be an asset.

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(2634)

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HEAD OF MANAGEMENT SERVICES

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Lower Baggot Street,
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to reach him not later than Wednesday, 24th September 1980.

BORD NA MÓNA

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(2878)

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POSITION **SYSTEMS PROGRAMMER**

RESPONSIBILITY In this position you will be responsible for design, implementation and maintenance of our hard- and software-components. Keeping current with new developments while maintaining our systems for production support is a permanent challenge.

ESSENTIALS University degree in computer science or related discipline. Experience relevant to the job, thorough knowledge of current hardware and software-internals. Especially it would be appreciated to have experience, knowledge and skill in transferring a DOS-environment into a MVS-environment.

POSITION **PROGRAMMER PROGRAMMER/ANALYST**

RESPONSIBILITY In this position you will be helping to develop and implement effective solutions. You will be participating first hand in new developments in database and on-line techniques. You will be working self-responsible in one of our project teams.

ESSENTIALS University degree in computer science, business administration or related discipline. Experience and thorough knowledge of the relevant software and in ASSEMBLER and/or PL/1, COBOL.

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(2878)

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Surrey/Sussex border based company seek experience of PDP applications programming.

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Hampshire based company developing Control and Radar Systems require 5 years' experience.

4. Systems Programmer To £10,000
South London, experience of MACRO 11, RSX11M Systems Programming.

5. Analyst/Programmer To £10,000
Central London based firm require experience of BASIC and communications for software support role.

6. Basic Plus To £7,000 +
Yorkshire based client requires programmers with BASIC PLUS experience for commercial applications.

7. Consultants To £12,000
London based major Software House, require 10 years' System Design and Programming experience for communications systems.

8. Real Time Programmers £9,000
Surrey based company requires minimum of 3 years' experience of Real Time Programming on PDPs using MACRO 11 or RTL2.

CW31/

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1. Real Time Programmers To £12,000
Hampshire-based consultancy require people for Defence and Military Systems. CORAL experience necessary.

2. Fortran Programmers To £12,000
West London company require programmers with FORTRAN and Numerical Control experience.

3. Real Time Designers To £9,000
Cheshire based company, require DEC, MACRO 11, FORTRAN and CORAL for Defence and Radar Systems.

4. Technical Support £ Neg.
London based, FORTRAN experience to provide programming support for packages.

5. Systems Engineers To £9,000
Staffordshire based firm require minimum 4 years' experience of mini/micro based systems for military projects.

6. Coral 66 To £10,000
London based consultancy requires Real Time Programmer for micro based communications and signals project.

7. Analyst Engineers To £9,000
London firm require support Engineers for Software development involving mechanical/aeronautical areas.

8. Fortran Programmer £ Neg.
London Consultancy require strong academic background for package design.

CW32/

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1. Burroughs Cobol £8,000
London based company requires 2 years COBOL for expanding development projects

2. Univac 1100 £10,000
Manchester based firm require 1100 experience to design new Real Time Database systems

3. Programming Designers £11,500
Croydon based firm need degree plus minimum 2 years' COBOL and design experience

4. ICL Programmers £ Neg.
Bedfordshire based company require 2 years' 1900 COBOL preferably under George 2 + experience

5. 1900 Cobol To £8,000
West London company using mainframes and minis require COBOL experience for sophisticated systems development

6. 3033N Cobol To £10,000
London firm require Team Leaders with IBM COBOL to lead small programming teams.

7. RPG II £7,500
Buckingham based, small team require minimum one year's expertise for new diverse applications.

8. 2980 £8,250
Middlesex firm require Senior Programmers with minimum of 3 years' ICL COBOL preferably 2900, for an on-line network.

CW34/

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1. Germany
German speaking candidates with experience of mini software or micro systems

2. Germany
Systems Programmer to work on 3031 under DOS/VS 2 years' experience necessary

3. Germany
Senior Systems Programmers for large IBM systems MVS/VS2/SNA/CICS Munich area, yearly renewable contracts

4. Germany
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5. France
IBM Systems Programmers with large machine expertise Tuning MVS, performance measurement experience ideal

6. Switzerland
Software Engineers with experience of Proless Control to work on Real Time systems

7. Switzerland
German speaking Technical Writer to work on Documentation for Real Time telecomms project.

8. Switzerland
IBM Systems Programmers with OS/VS1, CICS and preferably DL/1 for 3031 installation

CW36/

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1. To £9,000
East London based firm require Analyst with 3 years' systems design experience Realtime Database

2. To £9,000
Surrey based position requires 2 years' Systems development experience for Production and Financial Systems

3. £10,000 + Mortgage
City based international bank require Analysts with Banking experience.

4. £9,000
London firm requires Analysts with at least 2 years analysis experience including one major system

5. £8,000 + Bonus
City based stockbroking firm require 3 years' experience in financial or Stock Exchange systems.

6. To £10,000
West London firm require 4 years' experience to assist in developing an on-line warehousing system.

7. £8,250
Kent company require an Analyst with minimum 2 years' experience to join their small installation.

8. £8,500 + Car
Buckinghamshire firm require Senior Analyst with a programming background to take charge of User's systems.

CW37/

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1. PL/1 or Assembler To £8,000 +
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2. PL/1 To £8,500
North London firm requires minimum 2 years' solid PL/1 experience for Real Time Telecommunications Systems.

DOS/VM Systems Programmer £9,500
City based firm require a Systems Programmer to take responsibility for the arrival of a 4341 next year.

4. OS/MVS £10,000
Sussex based consultancy require Systems Programmers with several years' expertise.

5. Chief Programmer £10,000
City based installation requires experienced Programmer with MVS/COBOL and team leading expertise.

6. OS/VS1/Cobol £8,000
London based company with very large 3033 requires Programmers with COBOL under OS/VS1 or MVS.

7. DOS/VM Cobol £7,500
South Coast based firm require Senior Programmer to assist in forthcoming arrival of an IBM 4341.

8. CICS To £10,000
City based consultancy specialising in IBM software products require programmers with CICS experience.

CW33/

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1. Software Designers To £10,000
West Midlands based firm require Designers to develop military systems using CORAL and FORTRAN.

2. Software Engineers To £11,000
Middlesex based consultancy require minimum 5 years' software design including PDP or GEC 4000 series.

3. Real-Time Programmers £ Neg.
West Country based company require experience of Operating Systems, and communications for advanced technology.

4. Software Engineers To £10,000
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5. Design Engineer To £10,000
Sussex-based firm require experience in high level languages for Aircraft Simulation.

6. Senior Engineers To £10,000
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8. System X £ Neg.
North-West of England based firm require Engineers with Software Communications experience to work on System X.

CW35/

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1. Holland
Systems House require PDP 11 Programmers to work on communications projects.

2. Holland
Amsterdam based consultancy require Dutch speaking Software Engineers.

3. Greece
Fluent Greek speaking Programmer with COBOL experience to work on commercial mini based systems.

4. Greece
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5. Switzerland
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6. Germany
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7. Holland
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CW38/

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(2853)

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(2677)

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Contact: Janet Chilvers

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Information Retrieval Systems

London **to £10,500 + profit share**

This is a unique opportunity for an experienced computer information retrieval specialist to join one of the U.K.'s foremost services organisations.
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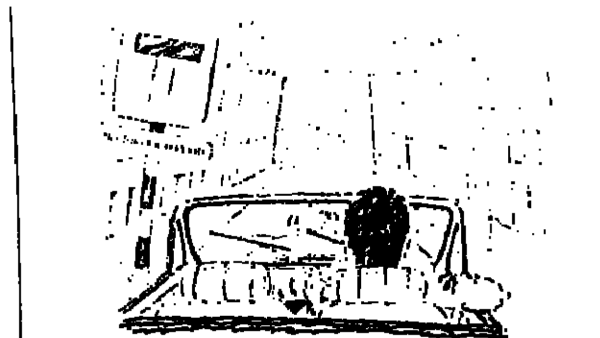

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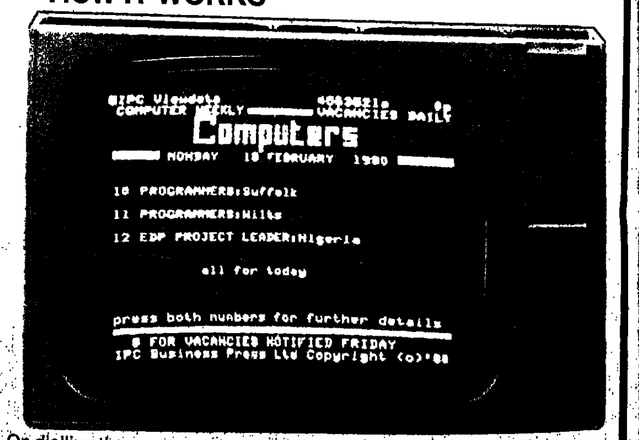

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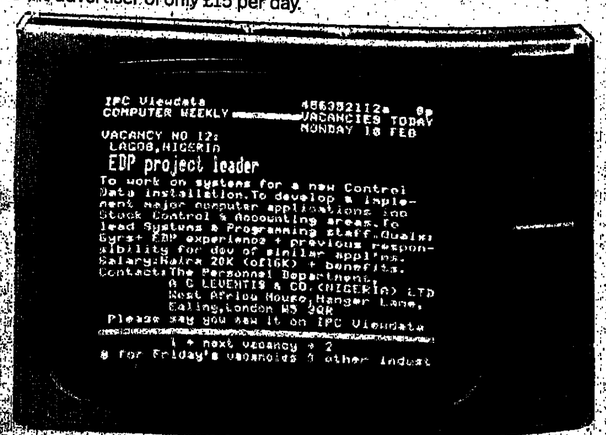

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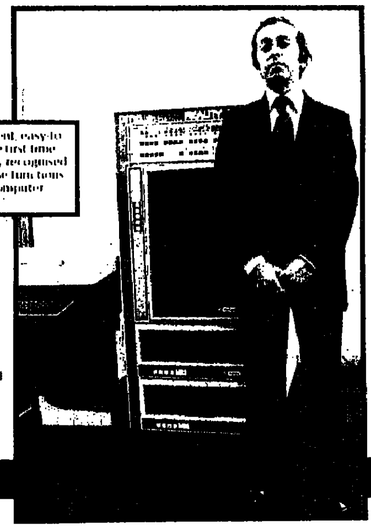

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TRAINEE ANALYST & TRAINEE PROGRAMMER

Surrey £4,500-£5,000 and £3,600-£3,900 respectively

ICL 2956/10 — Cobol. 2 "A" levels (including Maths) essential — good prospects and training. Ref: 06980 (Analyst) and 05980 (Programmer).

Please write or telephone
ANNA MORRIS or PETER NIGHTINGALE

White & Nunn
White & Nunn Personnel Services Limited
Unit 4 Station Approach
Fleet
Hants GU13 8QY
Tel - Fleet (02514) 21768

SENIOR SYSTEMS ANALYST/PROGRAMMER

(Thames Valley Area)

Senior Systems Analyst/Programmer required for expanding company producing well known brands of various food products.

The successful candidate will have had 3-5 years experience in mainly interactive systems with good all round commercial experience and now be ready to meet the challenge of a management position. The ability to programme COBOL and basic languages and communicate with all levels of staff is essential. You will report directly to the Managing Director and the immediate job is to take total responsibility for the Data General Mini computer installation including implementing the usual commercial systems for a first time user and future development.

Salary to £8,000. There is a good contributory pension and life assurance scheme in operation.

This is an excellent opportunity to join a friendly but vigorous company with good career prospects.

Please contact Personnel Manager, Manley Ratcliffe Ltd, Tower Road, Berinsfield, Oxford, for application form.

(2654)

County of Cleveland

County Treasurer's Department

SENIOR FINANCE/COMPUTER LIAISON OFFICER

£7,287-£7,723 (pay award pending)

[illegible] senior position is in a team responsible for the continuous review of [illegible] financial systems of the Authority. The person appointed will be responsible for financial systems co-ordination and liaison with the [illegible] Services Department.

[illegible] knowledge of computing systems and experience in systems [illegible] is required. The successful candidate must possess a considerable degree of initiative and be capable of sustaining an effective working relationship with officers at all levels in the Authority. Cleveland [illegible] a twin IBM 371/138 configuration and associated peripheral equipment. A great deal of emphasis is placed on teleprocessing development.

[illegible] with removal and relocation expenses will be provided in approved cases. Temporary housing accommodation may also be available within the County area.

Application forms are obtainable from the County Treasurer, P.O. Box 100, Municipal Buildings, Middlesbrough, Cleveland, TS1 2QH. Telephone (0642) 248155, ext. 2257. Closing date, 26th September 1980.

(2617)

IDMS Analyst/Programmers and Data Base Administrator

Benelux £20,000 + p.a.

We are looking for 3 people to undertake limited-term one to two year assignments for CDS in Belgium and Holland. Applicants should possess a good working knowledge of IDMS DB and DC, together with experience of IBM 4300 Series or System/370 under OS/VS1, DOS/VS or VSE. In addition, applicants for the Analyst/Programmer positions should have a solid grounding in COBOL and will have contributed to the design of at least one on-line database system.

For further details, please telephone or write to Jim Shaw at our UK offices, or call during evenings/weekends on 0990 24546.

cds The European 370 Specialists

67-73 Park Street, Camberley, Surrey GU15 3PE Tel. 0276 25845 Telex 858062

(2656)

UNIVERSITY COLLEGE LONDON

Lectureship in Computer Science

Applications invited for a permanent LECTURESHIP in the Department of Computer Science. The successful applicant will have interests in one or more of the following fields —

Systems Programming, Operating Systems, Microprocessors. Experience with Digital Electronics would be an asset.

Salary range £5,505-£11,575 plus £740 London Allowance. Applications with curriculum vitae to Assistant Secretary (Personnel) University College London, EC1E 6BT from whom further particulars may be obtained. Closing date for applications 6 October 1980.

(2644)

France

Hardware Consultant . . .

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10k
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SENIOR PROGRAMMER
Nr. GATWICK C.£8,500
At least 3 years' experience of ASSEMBLER preferably on mini computers is required for this position. Additionally some experience of High Level Language is also useful.

ANALYST/PROGRAMMERS
VICTORIA C.£10,000
A service organisation are seeking two Analyst/Programmers with 3-5 years' COBOL experience who are capable of dealing with users at all levels.

SYSTEMS ANALYST To £8,500
UXBRIDGE
1 to 2 years' experience of commercial applications is required for this position in a small team. Mainframe installation.

ANALYSTS + C.£9,000
PROGRAMMERS C.£7,000
SE1 + HAMMERSMITH
Various levels of positions are available for experienced Analysts and Programmers at two large installations using COBOL.

ANALYST/PROGRAMMER £8,000
CHELSEA
A manufacturing company is seeking an Analyst/Programmer with about 2-3 years' COBOL experience for on-line applications.

If you are interested in any of the above positions, please phone for an application form or write full details.

AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers, 119 Oxford Street, London W1R 1PA Tel: 01 434 1106

(2674)

IBM EXPERIENCE

MIDLANDS £7,000-£9,500 PLUS

Our client, a long established Midlands consultancy wish to recruit further professional staff at all levels.

The opportunities merit strong *consideration*, as the organisation can offer a real career challenge, allowing individuals scope and variety. The company is of long standing, stable and carefully managed. They are embarking on a well planned expansion, particularly on the 8100 and 4300 ranges and so seek additional staff with IBM experience.

The various roles include programming, principally in PL/I and COBOL, systems design, project management and consultancy, working with experienced colleagues, and provide opportunities for personal advancement.

Experience of CICS, DL/I, IMS, DMS or COPICS would be of particular interest, but is not essential.

The company has a friendly personal approach to clients and staff alike, and has generated an active social life. Benefits such as six monthly salary reviews and bonus, pension and sickness schemes, 5 weeks holiday, motoring allowance and expenses are attractive.

If you can offer IBM experience, and would like a confidential discussion, contact Mike Hessian ref CW 280.

CPC
COMPUTER PERSONNEL CONSULTANTS
18th Floor, The Rotunda
Birmingham B2 4PA
021-632 6848

(2547)

THE SALES BIT

Training for sales management

THE other day I had a conversation with my friend and business associate Edgar Francis of AMM. Advanced Marketing Management is the longest established specialist *sales and management* training organisation in the computer industry, used by most of the principal computer suppliers. Who better to ask about the nature of training for the aspiring sales manager?

This is, in essence, what Francis had to say:

"If the aspiring sales manager really believes he can do the job, he should first discuss the matter with his manager in a frank and open manner. In this way he can obtain an opinion of his potential capability from an informed third party, and establish the nature and occurrence of management training he is likely to require.

Mistakes

"Companies vary in their attitudes to pre-management training. The most enlightened will have a process for identifying potential managers and mapping out the formal and on-the-job training that they should undergo, before appointment to a management position.

"Others have a New Managers training scheme which people attend a few months after appointment. By that time they may have made a few mistakes, but they will also have some real experience to which they can relate the theory.

"There are still a few companies where the attitude 'Training, I never had any training — you learn the job by doing it' remains.

"The latter case is unfortunately more prevalent than one might expect and is particularly true of the smaller organisation. The problem of obtaining trained management is often solved by recruiting experienced personnel from outside the company and neglecting internal candidates. This can be an expensive and unnecessary mistake.

"The primary difference between being a salesman and a sales manager is simple. In the first case, the objective is to achieve sales success by direct personal interaction with the buyer.

"In the second, the object is to achieve the same through other people. The prime need, therefore, is for the would-be sales manager to develop the ability to help other people perform successfully.

"This necessitates training and practice in such skills as agreeing objectives for all kinds of sales activity; monitoring and coaching people through their sales campaigns; constructively reviewing proposals and presentations; and getting involved in their sales in a supportive way.

"Simulations and role-plays can be valuable tools for teaching and practising these *principles*.

"As a preliminary to a total management role, the aspiring manager can be given responsibility for certain aspects of a trainee salesman's development in order to gain some experience of setting objectives and reviewing achievement. During his manager's holiday period the aspirant can be provided with an excellent opportunity for gaining direct experience of the breadth of the management chair.

"Today's sales manager must be a rounded businessman. This means that training in business principles related to his own company's objectives, as well as vital people skills, is essential.

Finance

"An aspect of business which is of increasing importance is finance generally, and the various ways of funding products and services. The implications of these from both the company and customer point of view must be fully understood if the sales manager is to give sound guidance to his people. He also needs to keep up with the rapidly changing taxation implications of financing business transactions.

"Two other aspects which should be included in pre-management training are the company's administrative procedures and practices (from how you buy your secretary a typewriter to how you make a job offer) and the legal aspects of recruitment and employment. Recruitment interviewing skills are needed from the beginning of a sales manager's career.

"The possibilities are countless, but these are at least some of the key areas in which an investment in pre-management training will yield a return in more effective management.

"A salesman should have good persuasive skills. He may well have to use them to persuade his company to make such an investment in him."

TRADER

CONFERENCES

AUTOMATIC Testing '80 will be held in Paris, at the Centre International de Paris from September 24-26. The conference programme begins a day earlier and will include several discussion groups, such as testing of microprocessors, production testing and military use of ATE. The show is being organised by Network, and the conference is sponsored by the Institution of Electronic and Radio Engineers, The Institution of Quality Assurance and the Society of Test Engineers. Further information from Jeff Watts (UK) or Gin Plau (France), 272 rue du Fauborg Saint Honoré, 75008 Paris.

BUYER'S Forums, organised by Infotech International, will be held in London on September 26-27, October 11-12, November 7-9, November 27-29 and December 5-7. Each Forum deals with a specific market such as word processors, graphic systems and small business computers, and provides a way of choosing a computer-based system and getting up-to-date information for the businessman or woman. Further information from Clive Smith, Infotech International, Nicholson House, Maidenhead, Berks, or telephone Alan Morton on (01) 247 6525.

Puzzle Answer

THE rule-of-thumb is

$$\frac{(x-1)(y-1)}{2}$$

where x and y are the given numbers. So with 8 and 11, there are 35 unformable integers — 69 being the largest.

Technical/Scientific

PARAMIN STAINES/LUTON

To £11,000
Car Allowance
Private Medical Scheme

PARAMIN was formed in 1974. To date they have offices in the USA, Europe and the UK, with several major projects to their credit in these countries, as well as Canada and Japan. PARAMIN UK are currently seeking experienced personnel to progress with the company into the 80s, working on extremely interesting projects.
They require individuals from a scientific/technical background with a degree in Computer Science and at least two years' Coral Pascal Fortran or RT2 on minis or micro. You should be familiar with one or more of the following areas: REAL TIME SYSTEMS, BASIC SOFTWARE, ROBOTICS, OPERATING SYSTEMS, A.T.E., PROCESS CONTROL and, in total, you should have a minimum of five years' experience in computing.
PARAMIN has a very successful track record; this has been achieved through sound principles and standards. Develop your career with PARAMIN.
For further information please contact Mike or Eddie Howard or just complete the coupon.

DEC IBM MODCOMP DG

UK & Holland

SYSTEMS TECHNOLOGY are a young, dynamic systems house dedicated to the design and development of complex computer systems. Based in Central London, with clients throughout the south of England and parts of Europe, they plan to open an office in Holland in the near future. They are currently undergoing a planned phase of growth and wish to attract young enthusiastic individuals with a degree or equivalent in a numerate discipline offering 1 - 3 years experience in any of the following areas.

- COMMUNICATIONS
- PROCESS CONTROL
- BASIC SOFTWARE
- REAL TIME SYSTEMS
- SCIENTIFIC PROGRAMMING

This is an excellent time to team up with a highly successful company who are still young enough to recognise and appreciate dedication and determination. Career opportunities are excellent, offering variety and scope on projects in the U.K. and Europe.
For further information please contact Eddie or Mike Howard or just complete the coupon.

Mini Computer Software Development

W. LONDON/BERKSHIRE — TO £11,000

We are recruiting on behalf of an established American company who produce high performance 32 BIT mini computer systems for the TRANSACTION PROCESSING MARKET. With many new exciting developments taking place at their Berkshire H.Q., they have a requirement for an additional Designer/Programmer to work on an advanced database management system.
The successful applicant will join a small professional project team which has total responsibility for the development of the product. Ideally he or she should have 3-4 years D.P. experience in Assembler programming and systems design. This Company is highly recommended and offers a promising and rewarding future to those portraying dedication and enthusiasm. All the normal benefits associated with a company of this status can be expected.
For further information please contact Eddie or Mike Howard or just complete the coupon.

Software Managers

HAMPSHIRE

Our Client is part of a multi-national organisation employing more than 50,000 personnel in over 50 countries and is a leading figure in the development of Industrial Systems and Radar Simulation. Presently they require two Software Managers, one in the Industrial Systems Group and the other in Radar Simulation.
THE INDUSTRIAL SYSTEMS GROUP is mainly concerned with measurement and control systems for energy management in such areas as power generation, process plant, and engine test bringing together systems design, applications software project engineering and contract management expertise required for data acquisition systems.
RADAR SIMULATION UNIT is concerned with the development of digital Naval and Marine simulators ranging from large trainers employing other navigational aids to compact minimal configuration trainers.
It is imperative that candidates have sound experience in Man Management along with expertise in most aspects of Real Time Software design and development.
For further information please contact Mike or Eddie Howard or just complete the coupon.

Consultants — Systems Analysts

LONDON & H.C. — **SALARY TO to £16,000**

A highly respected Systems Consultancy based in Central London require business minded Systems Analysts and Consultants to maintain and develop new business. You will be involved with many interesting aspects of this company's business, i.e. client proposals, presentation, on site development and overseeing work to final completion.
It is important that applicants are adaptable, articulate, neat in presentation and possess a high degree of technical competence. Mobility is also a requirement and opportunities for foreign travel are available. This is a highly reputable organisation implementing top level management for many years.
For further information please contact Eddie or Mike Howard or just complete the coupon.

UK & and Overseas

Systems Programmers Technical Authors

Here is an excellent opportunity for technically minded individuals with an interest in either systems programming or technical writing. A leading computer manufacturer is now recruiting additional personnel to meet the demands of a rapidly expanding section of the industry.
PROGRAMMERS with a minimum of two years' technical experience will be involved in a variety of projects ranging from software design and development through to final testing and implementation prior to general release.
TECHNICAL AUTHORS with some previous experience in the production of technical specifications and software manuals will be required to work in close association with both software design and product test teams. Applicants should be prepared to tackle and solve all manner of problems and maintain a high standard of documentation at every stage. Rapid career advancement is envisaged for those with the right background, qualities and experience.
For further information please contact Mike or Eddie Howard or just complete the coupon.

COBOL ASSEMBLER

Edmund Howard & Partners have been established for some years, successfully recruiting all levels of personnel for a wide selection of Blue Chip Companies throughout the U.K. and Europe.
Right now we have some key appointments requiring different levels of experience in user consultancy and financial environments. If your experience covers any of the above languages we would be very pleased to hear from you, we wont waste your time.
For further information please contact Eddie or Mike Howard or just complete the coupon.

NAME
ADDRESS

TEL (Home) TEL (Work)
POSITION APPLIED FOR

Edmund Howard & Partners

5 Brighton Road, Surbiton, Surrey, England. Tel - 01 399 9183

MODUS

International Personnel Consultants
Modus Management Services Limited
148 Watling Street, Radlett, Herts. WD7 7JH
Telephone: Radlett (09276) 3077

Database/Distributed Systems Consultants

Specialist, high-level Consultancy and Project Leading career positions

Holland — **c £20,000 + car**

Our client is rapidly gaining the respect and confidence of the Dutch market place with the high quality of specialist expertise it is able to provide, helping to solve some of the most complex systems and strategy problems that the use of database and associated methodologies can engender. The company is gradually expanding in numbers and scope and is looking for technical project leaders, analysts and designers with extensive experience at the sharp end of db and distributed systems technology to complement the existing team.

These are career positions, so full relocation is provided on top of excellent salary packages which are well up to the highest Continental standards.

MVS Technical Support

Software support — lots of travel and client contact

Holland — **to £18,000**

Modus has just been notified of an exciting and unusual systems programming vacancy in Holland with Europe's largest independent computer services company. It is a permanent job and involves supporting MVS sites encompassing the total range of IBM products and utilities.

We seek a good, outward going Systems Programmer with in-depth MVS experience who is used to diagnosing, analysing and solving software problems. The company offers an attractive package which includes relocation benefits. Dutch is not essential.

Micro-Software Designers

Computer manufacturer — new development work

Germany — **£18,000-£25,000**

Modus has been requested to recruit a number of experienced micro designers to work on a major development project in Southern Germany for a period of at least 12 months.

A thorough knowledge of the Intel 8080 software and hardware is essential and candidates will be expected to have made a substantial contribution to at least one complete project. In broad terms, the experience bias being sought is 80% software and 20% hardware, plus a tertiary qualification (minimum HNC). German is not essential.

Systems Designers and Programmers

Real-time communications systems and software development

London — **£7,500-£10,000**

Our client can offer excellent opportunities now for Programmers and Designers to develop a career in a field in which cost-effective and realistic solutions have gained the company a first class reputation for professional excellence and reliability. Systems being designed and implemented now incorporate VAX 11/780's and INTEL 8086's, for which much specialised software and hardware is being developed.

Candidates must have an honours degree or equivalent in a numerate discipline and have between 3 and 5 years sound experience of developing real-time systems and software. The growth of this company underlines their success and guarantees ambitious and able individuals a progressive career.

Analyst/Programmers — IMS Applications

International bank — developments leading to distributed database.

North Surrey — **c £10,000 + + +**

This well known and highly respected international bank has radically altered its development plans to include a total commitment to a database strategy and the flexibility to go for a distributed dbms, as soon as the software is available, is even now being built in.

Positions are still open for skilled and imaginative analyst/programmers with in-depth experience of designing and programming for IMS db/dc systems, to join the development team. Additionally, knowledge of ADF would be extremely valuable, whilst a minimum of 3 years spent in a commercial or financial dp environment is essential. Salaries are negotiable around £10K and bank benefits such as mortgage assistance and free life insurance are open to all.

Sales Executives

Software, hardware or services — all locations at all levels

UK and International

It is the ability to recognise, pursue and secure a sale that our clients are seeking. A track record of success in dp sales will enable us to discuss with you several opportunities that are currently available and to mutually agree on a particular company or type of position.

Our careful and selective approach to the business of finding the correct position for our applicants will surely appeal. Call us for a confidential discussion of your requirements and career objectives.

Banking Systems Specialists

To work for a specialist city consultancy

City of London — **£9,000-£15,000**

Banks operate at the centre of industry and commerce and their task of keeping abreast of the latest techniques in data processing is a major and undiminishing problem. Our client has established a specialist group to concentrate on providing solutions to this sector of the market.

A number of additional consultants are now required to join the company, all of whom must have in-depth experience of the banking world and be fully able to take on any role in a project context. The work offers absorbing and creative consultancy activities together with a long term rewarding career.

Programmers

Development of CICS systems on a brand new 4300 installation

Brussels — **from £17,000**

The Middle Eastern and European subsidiary of one of the world's largest civil engineering companies has embarked on a complete redevelopment project centred on a newly installed IBM 4300. This system is to include CICS and IDMS serving a large distributed processing network, incorporating management information and production control facilities.

These permanent career positions require staff with experience of CICS development, at command level, coupled with a thorough knowledge of COBOL. Candidates with some additional experience of FORTRAN, ASSEMBLER or PL/1 will be most suitable.

Consultants:— Mike Creamer or Andy Wright
If the advertised positions do not match your experience or aspirations, Mike and Andy are always available for a confidential discussion of the possibilities. An informal meeting — often an essential part of the process — can be quickly arranged.
(7649)

City of Aberdeen

CITY CHAMBERLAIN'S DEPARTMENT

Computer Analyst/ Programmer

Salary scale: £5,427 to £8,586 per annum
(National Award is pending)

Applications are invited for the above superannuable post. The position is within one of two teams responsible for applications systems, and offers experienced programmers the opportunity to move into systems design. Systems training will be given where appropriate. 2 × ICL 2904/50 computers are installed, one used solely for communications, together with 9 × EDS60s, 1 × Train Printer, 4 × 40Kc Magnetic Tape Decks and communications equipment.

Placing within the salary scale will be according to experience, which must include proficiency in COBOL using disc housekeeping, preferably on ICL 1900 or 2903/4 Series machines. Experience in a communications environment will be beneficial.

Five-day week, flexible working hours. (Minimum 21 days annual leave plus 11 public holidays.)

Application forms and further particulars may be obtained from the City Chamberlain, Town House, Aberdeen AB9 1AH, to whom completed forms should be returned not later than Wednesday, September 24, 1980.

In respect of the above posts a Union Membership Agreement is in operation and the person(s) appointed will be required to join an appropriate Trade Union unless exemption is granted on religious grounds.

Computer Manager

Cardiff c. £10,000

This challenging post is created by the installation of a Honeywell L64/DPS2 in the Membership Records Department of the Royal College of Nursing. The College is both the professional organisation and trade union for nurses, with a current membership in excess of 170,000 and growing. Computerisation of membership records and subscriptions is the initial and major task, to be followed by the provision of an in-house service to other departments of the College. The computer will use a network of terminals in Cardiff and London and candidates should have a sound knowledge of communications and database techniques.

For further details and an application form, telephone or write to the Personnel Officer, Royal College of Nursing, Henrietta Place, London W1M 0AB. Tel: 01-580 2646.

Rcn
Royal College of Nursing
(2892)

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All classified copy should reach our offices no later than 3.30 p.m. on the Monday preceding Thursday's publication.
If complete artwork is supplied, 11 a.m. on a Tuesday.
Ring Ray Kelly for further details on 01-261 8016.

SDRC

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SALES EXECUTIVE

Specialist Engineering Graphics Software Products

Salary £10,000 plus car

SDRC is a growing international engineering consultancy applying high technology dynamic testing, analysis and design techniques in the transportation, process, power, aerospace, mechanical and electrical engineering industries. Its engineers assist in solving vibration, stress and failure problems, and provide practical engineering design assistance.

Continued expansion in our FINITE ELEMENT MODELLING applications market has created the challenging position of Application Sales Consultant in this area.

We are looking for a person with at least two years' sales experience either in graphics or engineering applications. He or she will be a key professional member of our FEM team, with the responsibility to create sales, aid in formulation of business goals, develop and manage key accounts, and liaise with existing vendors. Strong commercial awareness and team orientation are essential.

Please send résumé, in confidence, describing qualifications, experience and career aspirations, to:

Martin A. Needs, Computer Services Manager
SDRC ENGINEERING SERVICES (UK/SCAN) LTD.
York House, Stevenage Road
Hitchin, Hertfordshire SG4 9DY
Telephone: HITCHIN (0426) 57111
7665